C122-E003-02EN

PRIMEQUEST 480/440

REFERENCE MANUAL : GUI/COMMANDS



FOR SAFE OPERATION

This manual contains important information regarding the use and handling of this product. Read this manual thoroughly. Pay special attention to the section "NOTE ON SAFETY" Use the product according to the instructions and information available in this manual. Keep this manual handy for further reference.

Fujitsu makes every effort to prevent users and bystanders from being injured or from suffering damage to their property. Use the product according to this manual.

ABOUT THIS PRODUCT

This product is designed and manufactured for use in standard applications such as office work, personal device, household appliance, and general industrial applications. This product is not intended for use in nuclear-reactor control systems, aeronautical and space systems, air traffic control systems, mass transportation control systems, medical devices for life support, missile launch control systems or other specialized uses in which extremely high levels of reliability are required, the required levels of safety cannot be guaranteed, or a failure or operational error could be life-threatening or could cause physical injury (referred to hereafter as "high-risk" use). You shall not use this product without securing the sufficient safety required for high-risk use. If you wish to use this product for high-risk use, please consult with sales representatives in charge before such use.

RADIO FREQUENCY INTERFERENCE STATEMENT

The following notice is for EU users only.

WARNING: This is a product which meets Class A of EN55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The following notice is for USA users only.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Laser standards

This equipment includes Class 1 laser products and complies with FDA Radiation Performance Standards, 21 CFR 1040.10 and 1040.11, and the International Laser Safety Standards IEC60825-1: 2001.

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Revision History

(1/1)

Edition	Date	Revised section	Details
Edition	Date	(Added/ Deleted/ Altered)(Note)	Details
01	2005-07-11	_	_
02	2005-09-16	All Chapters (correction)	Technical brushup
		Chapter 5 (correction)	Addition of description for
		,	Windows version

Note: In this table, the revised section is indicated by its section number in the current edition.

An asterisk (*) indicates a section in the previous edition.

Preface

This manual describes how to operate and maintain the system using the Web-UI and command line interface (CLI) provided with the PRIMEQUEST-series machine. Read this manual together with the manuals referenced in this manual.

This section explains:

- Structure and Contents of This Manual
- Other Reference Manuals
- Text Conventions
- Syntax of the Command Line Interface (CLI)
- Environmental Requirements for Using This Product
- Conventions for Alert Messages

Structure and Contents of This Manual

This manual is organized as described below:

Part 1 Basics

CHAPTER 1 Structure of This manual and How to Read It

Describes the structure of this manual and provides information about reading the manual.

CHAPTER 2 Basic Operations

Describes basic operations from the Web-UI provided with the PRIMEQUEST-series machine.

Part 2 MMB

CHAPTER 3 Web-UI Operations

Provides a list of menus and describes the windows and use of the MMB Web-UI for managing and operating the PRIMEQUEST-series machine.

CHAPTER 4 CLI Operations

Describes use of the CLI for managing and operating the PRIMEQUEST-series machine.

C122-E003-02EN

Part 3 PSA

CHAPTER 5 Web-UI Operations

Provides a list of menus and describes the windows and use of the MMB Web-UI for PSA operations.

CHAPTER 6 CLI Operations

Describes use of the CLI for PSA operations.

Part 4 GSWB

CHAPTER 7 Web-UI Operations

Describes the windows and operations used when manipulating the GSWB via the MMB Web-UI and provides a list of menus for these operations.

CHAPTER 8 CLI Operations

Describes the use of the CLI for GSWB operations.

Part 5 EFI

CHAPTER 9 EFI Overview

Provides an overview of the EFI.

CHAPTER 10 Boot Manager

Describes the EFI menu functions used to specify and change boot processing.

CHAPTER 11 DVD Retry Boot

Describes automatic OS booting, EFI shell activation, and modifications to automatic boot priorities.

CHAPTER 12 EFI Shell and EFI Commands

Describes the EFI shell functions.

Appendix A Alternative Key Combinations for Some Special Keys on Serial Terminals

Describes alternate inputs for specific keys on serial terminals.

Index

Describes keywords and corresponding reference page numbers.

ii C122-E003-02EN

Other Reference Manuals

The following manuals are provided for reference:

a) Printed manuals

PRIMEQUEST 480/440 Installation Manual (C122-E001EN)

b) PDF manuals included on the PRIMEQUEST Manual CD-ROM disk (C122-E013-C2)

PRIMEQUEST 480/440 System Design Guide (C122-B001EN)

PRIMEQUEST 480/440 Installation Planning Manual (C122-H001EN)

PRIMEQUEST 480/440 Installation Manual (C122-E001EN)

PRIMEQUEST 480/440 Operation Manual (C122-E002EN)

PRIMEQUEST 480/440 Reference Manual: Messages/Logs (C122-E004EN)

Text Conventions

This manual uses the following symbols to express specific types of information:

Fonts/symbols	Meaning	Example
Italic	Indicates names of manuals.	See the PRIMEQUEST 480/440
Halle		System Design Guide.
	Indicates names of chapters,	See Chapter 5, "System
" "	sections, items, buttons, or	Maintenance.
	menus.	
	Indicates window names,	Click the [OK] button.
[]	window button names, tab	
	names, and dropdown menu	
	selections.	

C122-E003-02EN iii

Syntax of the Command Line Interface (CLI)

The command syntax is described below.

Command syntax

The command syntax is as follows:

- A variable that requires input of a value must be enclosed in <>.
- An optional element must be enclosed in [].
- A group of options for an optional keyword must be enclosed in [] and delimited by |.
- A group of options for a mandatory keyword must be enclosed in { } and delimited by |.

The command syntax is shown in a frame such as this one.

Environmental Requirements for Using This Product

This product is a computer which is intended to be used in a computer room. For details on the operational environment, see the *PRIMEQUEST 480/440 Installation Planning Manual* (C122-H001EN).

Conventions for Alert Messages

This manual uses the following conventions to show alert messages. An alert message consists of an alert signal and alert statements.

A WARNING	This indicates a hazardous situation could result in serious personal injury if the user does not perform the procedure correctly.
▲ CAUTION	This indicates a hazardous situation could result in minor or moderate personal injury if the user does not perform the procedure correctly. This signal also indicates that damage to the product or other property may occur if the user does not perform the procedure correctly.
IMPORTANT	This indicates information that could help the user to use the product more effectively.

V C122-E003-02EN

Alert messages in the text

In the text, alert messages are indented to distinguish then from regular text. A wider space precedes and follows the message to show where the message begins and ends.

AWARNING

Certain tasks in this manual should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause electric shock, injury, or fire.

- Installation and reinstallation of all components, and initial settings
- Removal of front, rear, or side covers
- Mounting/de-mounting of optional internal devices
- Plugging or unplugging of external interface cards
- Maintenance and inspections (repairing, and regular diagnosis and maintenance)

The important alert messages are listed in the "Important Alert Messages" table in the section titled, "NOTE ON SAFETY" after "Preface."

Reader Feedback

- In this manual, it is assumed that two BMMs (optional products) can be connected to a single I/O unit; this is reflected both in the explanations and in the figures included in this manual. At present, however, the PRIMEQUEST 480/400 series supports only connection to one BMM (BMM#0) per I/O unit.
- The screen images in this manual may be different from the actual screen images.
- If you find any errors or unclear statements in this manual, please fill in the "Reader's Comment Form" sheet at the back of this manual and forward it to the address indicated at the bottom of the sheet.
- This manual is subject to revision without prior notice.

C122-E003-02EN v

NOTE ON SAFETY

Important Alert Messages

This manual provides the following important alert signals:



This indicates a hazardous situation that could result in minor or moderate personal injury if the user does not perform the procedure correctly. This signal also indicates that damage to the product or other property may occur if the user does not perform the procedure correctly.

Task	Warning	Page
Normal	Malfunction	P.2-1
operation	The MMB Web-UI supports the Web browsers listed	
	below. Note that other browsers may not display Web-UI windows correctly.	
	 Microsoft® Internet Explorer (IE) v5.5 (SP2) and later Netscape v7.02 and later 	
	Guarantee of operation	P.3-108
	Do not use Standard Mirror Mode/Advanced Mirror Mode. Do not use this field. Doing so may lead to a malfunction and result in data corruption or a device failure.	
	Guarantee of operation	P.3-108
	<u>-</u>	P.3-152
	and result in destroyed data or a device failure.	P.3-153
	Guarantee of operation	P.3-173
	Fujitsu certified service engineers use the [Maintenance	
	Wizard] window for maintenance. Customers should not	
	use this window. Doing so may cause a failure.	
	Malfunction	P.5-2
	In operation under PSA, the [Refresh] button is displayed in windows with variable data, but this excludes windows for process monitoring, system files, and software inventory. When you select [Enable] in the [Refresh Rate] window for the MMB, no automatic refresh will become effective. New information is collected at regular intervals	
	(30 minutes) to ensure that up-to-date values can be displayed. Therefore, the latest information may not be displayed depending on the time the button is clicked. Items on which up-to-date information is retrieved when they are displayed are noted in each description of the window.	

C122-E003-02EN vii

Product Handling

Maintenance



Certain tasks in this manual should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause electric shock, injury, or fire.

- Installation and reinstallation of all components, and initial settings
- Removal of front, rear, or side covers
- Mounting/de-mounting of optional internal devices
- Plugging or unplugging of external interface cards
- Maintenance and inspections (repairing, and regular diagnosis and maintenance)



The following tasks regarding this product and the optional products provided from Fujitsu should only be performed by a certified service engineer. Users must not perform these tasks. Incorrect operation of these tasks may cause malfunction.

• Unpacking optional adapters and such packages delivered to the users

Remodeling/Rebuilding



Do not make mechanical or electrical modifications to the equipment. Using this product after modifying or overhauling may cause unexpected injury or damage to the property, the user, or bystanders.

C122-E003-02EN ix

Contents

Preface		cture and Contents of This Manual	į i
		er Reference Manuals	iii
		Conventions	iii
	Syn	tax of the Command Line Interface (CLI)	iv
	Env	ironmental Requirements for Using This Product	iv
	Con	ventions for Alert Messages	iv
NOTE O	N SA	AFETY	vii
	Impo	ortant Alert Messages	Vii
Product	Han	dling	ix
		ntenance	ix
	Ren	nodeling/Rebuilding	ix
Part 1	Bas	sics	
		Structure of This manual and How to Read It	1-1
	1.1	Conventions Used in This Manual	1-2
	1.2	Correspondence between Windows and Parts of This Manual	1-5
CHAPTE	R 2	Basic Operations	2-1
	2.1	Web-UI Windows	2-1
	2.2	Frame Configuration	2-3
	2.3	Information Frame	2-4
	2.4	Submenu Frame	2-6
	2.5	Content Display Frame	2-7
	2.6		2-9
	2.7	User Privilege Levels	2-12
	2.8	Switching to Operations with Software of Another Type	2-13
Part 2	MN	IB	
CHAPTE	R 3	Web-UI Operations	3-1
	3.1	List of Menus in the Web-UI Window	3-1
	3.2	System Menu	3-8
		3.2.1 System Status window	3-8

C122-E003-02EN xi

3.2.2 System Event Log window	
3.2.2.1 System Event Log Filtering Co	ondition window 3-13
3.2.2.2 System Event Log (Detail) wir	idow
3.2.3 System Information window	
3.2.4 Firmware Information window	
3.2.5 System Setup window	
3.2.6 System Power Control window	
3.2.7 LEDs window	
3.2.8 Power Supply window	
3.2.9 Fans window	
3.2.9.1 Fans Status Clear window	
3.2.10 Temperature window	
3.2.11 SB menu	3-34
3.2.11.2 SB#x Status Clear window	
3.2.12 IO_Unit menu	
3.2.12.1 IO_Unit#x window	
3.2.13 System Interconnect menu	
3.2.13.1 XAI#x window	3-51
3.2.13.2 XDI#x window	
3.2.14 Other Boards menu	
3.2.14.1 CPCB window	
3.2.14.2 KVM window	3-59
3.2.14.3 OP-Panel window	
3.2.14.4 FANB window	3-63
3.2.14.5 PDB window	3-64
3.2.15 MMB menu	
3.2.15.1 MMB#x window	
3.2.16 GSWB menu	
3.2.16.1 GSWB#x window	3-67
3.2.17 PCI_Box menu	3-70
3.2.17.1 PCI_Box#x window	
3.3 Partition Menu	
3.3.1 Power Control window	
3.3.2 Schedule menu	3-81
3.3.2.1 Schedule Control window	
3.3.2.2 Schedule List window	3-82
3.3.3 USB/Video/DVD Switch window	
3.3.4 Console Redirection Switch window	
3.3.5 Partition Configuration window	
_	indow
3.3.5.2 Remove SB/IOU from Partition	
3.3.5.3 Partition Home window	

xii C122-E003-02EN

	0.00	D	and OD Oraclina with a suite day.	0.00
			erved SB Configuration window	
	3.3.7		ition#x menu	
	• • • • • • • • • • • • • • • • • • • •	3.7.1		
	_	3.7.2		
			ASR Control window	
			Console Redirection window	
			Mode window	
3.4	User A		istration Menu	
	3.4.1	User	List window	3-110
	3.4		Add/Edit User window	
	3.4.2	Cha	nge Password window	3-113
	3.4.3	Who	window	3-115
3.5	Netwo	rk Co	nfiguration Menu	3-116
	3.5.1	Date	e/Time window	3-116
	3.5.2	Netv	vork Interface window	3-118
	3.5.3	Man	agement LAN Port Configuration window	3-120
	3.5.4		vork Protocols window	
	3.5.5		esh Rate window	
	3.5.6		1P Configuration menu	
		5.6.1	•	
	_		SNMP Trap window	
			SNMP v3 Configuration window	
			menu	
		5.7.1		
	• • • • • • • • • • • • • • • • • • • •		Export Key/CSR window	
		5.7.3	Import Certificate window	
			Create Selfsigned Certificate window	
			menu	
			Create SSH Server Key window	
			note Server Management window	
			Edit User window	
			ess Control window	
			Add Filter window/Edit Filter window	
			m E-Mail window	
			Alarm Email Filtering Condition window	
			nse menu	
			Mirror License window	
0.0			32-way Upgrade License window	
3.6			e Menu	
	3.6.1		ware Update menu	
	_	3.1.1	MMB Firmware Update window	
			GSWB Firmware Update window	
	3.6	5.1.3	PAL/SAL Firmware Update window	3-159

C122-E003-02EN xiii

	3.6	6.1.4 EFI Firmware Update window	3-163
	3.6	6.1.5 BMC Firmware Update window	3-165
	3.6.2	Backup/Restore Configuration menu	3-167
	3.6	6.2.1 Backup/Restore MMB Configuration window	3-167
		6.2.2 Backup EFI Configuration window	
	3.6	6.2.3 Restore EFI Configuration window	
	3.6.3	Maintenance Wizard window	
	3.6.4	REMCS menu	3-173
CHAPTER 4	CLIC	Operations	4-1
4.1	Basic	CLI Operations	4-1
	4.1.1	Access through the serial interface	4-1
	4.1.2	Access via the management LAN interface	4-2
	4.1.3	List of CLI commands	4-2
4.2	2 Setting	g Commands	4-5
	4.2.1	factory_default	4-5
	4.2.2	clear access_control	4-6
	4.2.3	clear ssh_key	4-6
	4.2.4	power off	4-7
	4.2.5	power on	4-8
	4.2.6	download ssh_key	4-8
	4.2.7	set date	4-9
	4.2.8	set timezone	4-10
	4.2.9	set gateway	4-10
	4.2.10	set http	4-10
	4.2.11	set http_port	4-11
	4.2.12	set https	4-11
	4.2.13	set https_port	4-12
	4.2.14	set ssh	4-12
	4.2.15	set ssh_port	4-13
	4.2.16	set telnet	4-13
	4.2.17	set telnet_port	4-13
	4.2.18	set ip	4-14
	4.2.19	set hostname	4-14
	4.2.20	set remcs	4-15
4.3	B Displa	ay Commands	4-16
	4.3.1	show access_control	4-16
	4.3.2	show date	4-17
	4.3.3	show timezone	4-17
	4.3.4	show gateway	4-18
	4.3.5	show http	4-18
	4.3.6	show http port	4-19

xiv C122-E003-02EN

		4.3.7	show https	4-19
		4.3.8	show https_port	4-20
		4.3.9	show ip	4-20
		4.3.10	show hostname	4-21
	,	4.3.11	show ssh	4-21
	4	4.3.12	show ssh_port	4-22
		4.3.13	show telnet	4-22
		4.3.14	show telnet_port	4-23
		4.3.15	show network	4-23
		4.3.16	show remcs	4-24
		4.3.17	who	4-25
		4.3.18	help	4-25
	4.4	Updat	e Commands	4-27
		4.4.1	update MMB	4-27
		4.4.2	update BMC	4-28
		4.4.3	update EFI	4-29
		4.4.4	update SAL	4-30
	4.5	Other	Commands	4-32
		4.5.1	connect GSWB	4-32
		4.5.2	exit	4-33
		4.5.3	passwd	4-33
		4.5.4	ping	4-34
Dort 2	De	٨		
Part 3	PS.	A		
			UI Operations	5-1
		Web-	UI Operations	5-1 5-3
	ER 5 5.1	Web-		5-3
	ER 5 5.1	Web- List of Partition	Menus in the Web-UI Window	5-3
	5.1 5.2	Web- List of Partition CPUs	Menus in the Web-UI Window	5-3 5-5
	5.1 5.2 5.3	Web- List of Partition CPUs DIMM	Menus in the Web-UI Window	5-3 5-5 5-7
	5.1 5.2 5.3 5.4	Web- List of Partition CPUs DIMM	Menus in the Web-UI Window on Information Window Window s Window	5-3 5-5 5-7 5-8
	5.1 5.2 5.3 5.4	Web- List of Partition CPUs DIMM PCI D	Menus in the Web-UI Window on Information Window Window s Window evices Window	5-3 5-5 5-7 5-8 5-10
	5.1 5.2 5.3 5.4	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2	Menus in the Web-UI Window on Information Window Window Is Window evices Window Ethernet Controller window	5-3 5-5 5-7 5-8 5-10 5-12
	5.1 5.2 5.3 5.4 5.5	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2	Menus in the Web-UI Window on Information Window Window s Window evices Window Ethernet Controller window Storage Controller window	5-3 5-5 5-7 5-8 5-10 5-12 5-17
	5.1 5.2 5.3 5.4 5.5	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwo	Menus in the Web-UI Window on Information Window Window s Window evices Window Ethernet Controller window Storage Controller window ork Menu	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22
	5.1 5.2 5.3 5.4 5.5	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwood	Menus in the Web-UI Window on Information Window Window s Window evices Window Ethernet Controller window Storage Controller window ork Menu Network Interfaces window	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22 5-22
	5.1 5.2 5.3 5.4 5.5	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwood 5.6.1 5.6.2 Disk F	Menus in the Web-UI Window on Information Window Window s Window evices Window Ethernet Controller window Storage Controller window ork Menu Network Interfaces window Network Routing window	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22 5-25
	5.1 5.2 5.3 5.4 5.5 5.6	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwood 5.6.1 5.6.2 Disk F	Menus in the Web-UI Window On Information Window Window Is Window Evices Window Ethernet Controller window Storage Controller window Ork Menu Network Interfaces window Network Routing window Partitions Window	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22 5-25 5-25
	5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwood 5.6.1 5.6.2 Disk F	Menus in the Web-UI Window On Information Window Window Storices Window Storage Controller window Ork Menu Network Interfaces window Network Routing window Partitions Window Stist Window Merices Window	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22 5-25 5-26 5-27
	5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9	Web- List of Partition CPUs DIMM PCI D 5.5.1 5.5.2 Netwood 5.6.1 5.6.2 Disk F Proce System 5.9.1	Menus in the Web-UI Window On Information Window Window Storices Window Storage Controller window Ork Menu Network Interfaces window Network Routing window Partitions Window m File (Selection) Window	5-3 5-5 5-7 5-8 5-10 5-12 5-17 5-22 5-25 5-26 5-27 5-31

C122-E003-02EN xv

		5.10.1	Hardware Inventory window	5-35
	;	5.10.2	Software Inventory window	5-37
		5.10	0.2.1 Software Inventory -Detail- window	5-39
	5.11	Agent	Log Window	5-41
		5.11.1	Agent Log Filtering Condition window	5-44
	5.12	SEL V	Vindow	5-47
	5.13	8 Expor	t List Window	5-49
	;	5.13.1	Export window	5-52
	5.14	Setup	Menu	5-54
	;	5.14.1	Watchdog window	5-54
	;	5.14.2	S.M.A.R.T. window	5-57
CHAPTE	R 6	CLI C	perations	6-1
				6-1
	6.1		CLI Operations	
	6.0		List of CLI commands	6-1
	6.2		TE Operation Command (diskctrl)	6-3 6-8
	6.3		Start/Stop Command (y30FJSVpsa)	6-9
	6.4		Froubleshooting Data Collection Command (getopsa)	
	6.5		Definition Update Commands (fltcpy, fltupdate)	6-11
	6.6		ocal Partition Number Command (getpartid)	6-16
	6.7		erial Number Command (getserialno)	6-18
	6.8	SINIVIE	Security Setting Command (setsnmpsec)	6-20
Part 4	GS	WR		
i ait -	U U	***		
CHAPTE	R 7	Web-	UI Operations	7-1
	7.1	Web-l	Il menu configuration	7-6
	7.2	GSWE	3 Status Menu	7-10
		7.2.1	GSWB Status window	7-10
	7.3	Config	guration Copy Menu	7-12
		7.3.1	Configuration Copy window	7-12
	7.4	Syste	m Menu	7-14
		7.4.1	Information window	7-14
		7.4.2	Host window	7-16
		7.4.3	Upload Configuration window	7-18
		7.4.4	Download Configuration window	7-20
		7.4.5	Save Configuration window	7-22
		7.4.6	Restore Configuration window	7-23
		7.4.7	Active Image Change window	7-25
		7.4.8	Error Log window	7-27
		7.4.9	Line Log window	7-29

xvi C122-E003-02EN

7.4.10	Message Log window	7-31
7.4.11	Trap Log window	7-33
7.4.12	Log Setting window	7-34
7.4.13	Log Download window	7-36
7.5 Mana	agement Menu	7-38
7.5.1	SNMP menu	7-38
7	.5.1.1 SNMP Community window	7-38
7	.5.1.2 SNMP 3 Configuration window	7-40
7	.5.1.3 SNMP Trap window	7-43
7.5.2	Telnet window	7-45
7.5.3	SSH Status window	7-46
7.5.4	SSH Key Generate window	7-48
7.5.5	Remote Access window	7-49
7.6 Port I	Menu	7-52
7.6.1	Port Configuration window	7-52
7.6.2	Port Status window	7-55
7.6.3	Port Mirroring menu	7-56
7	.6.3.1 Destination Port window	7-57
	.6.3.2 Source Port window	7-59
7.6.4	Port Statistics window	7-60
7.6.5	Flow Control window	7-64
7.6.6	Rate Control window	7-67
7.7 Jumb	oo Frame Menu	7-70
7.7.1	Jumbo Frame window	7-70
7.8 MAC	Bridge Menu	7-72
7.8.1	Aging Time window	7-72
7.8.2		7-73
7.8.3	MAC Address Table window	7-75
	ning Tree Menu	7-77
7.9.1	Global Setting window	7-77
7.9.2	Interface Setting window	7-79
7.9.3		7-82
7.9.4	STP Statistics window	7-86
_	N Menu	7-90
7.10.1	VLAN ID Select window	7-90
_	10.1.1 VLAN Configuration window	7-92
7.10.2		7-94
7.10.2	Delete VLAN window	7-95
7.10.3	Native VLAN window	7-96
_	ty Queueing Menu	7-99
7.11 711011	Default Priority window	7-99 7-99
	CoS Queue Man window	7-102

C122-E003-02EN xvii

7.12 Channel Group Menu	7-105
7.12.1 Channel Group window	7-105
7.13 IGMP Snooping Menu	7-108
7.13.1 Global Setting window	7-108
7.13.2 VLAN Setting window	7-109
7.13.3 MAC Address window	7-112
7.14 Partition Menu	7-114
7.14.1 Partition window	7-114
7.15 Power Control Menu	7-116
7.15.1 Power Control window	7-116
7.16 Reset Menu	7-118
7.16.1 Reset window	7-118
CHAPTER 8 CLI Operations	8-1
8.1 Basic CLI Operations	
8.1.1 Operating environment	
8.1.2 CLI access procedure	
8.1.3 CLI command modes	
8.1.4 Interface designation and display	8-3
8.1.5 Configuration definition command operations	
8.1.5.1 Command input method and execution trigger	
8.1.5.2 Help function	
8.1.5.3 Tab-based complement function	
8.1.5.4 Command editing function	
8.1.5.5 Command selection display function	
8.1.5.6 Error messages	
8.1.5.7 Special input format and display format	
8.1.6 Operation command operations	
8.1.6.1 Input string requirements	
8.1.6.2 Competition between commands	
8.1.6.3 Help function	
8.1.6.4 Command name abbreviation function	
8.1.6.5 Termcap support	
8.1.6.6 Display termination function with the [Ctrl]+[c] keys 8.1.6.7 String editing function using function keys	
8.1.6.8 History function	
8.1.6.9 Pager function	
8.1.6.10 Tab-based complement function	
8.1.6.11 Error messages	
8.1.7 Lists of CLI commands	
8.1.7.1 Lists of the configuration definition commands	
8.1.7.2 Lists of the operation commands	
8.2 Configuration Definition Commands	8-25

xviii C122-E003-02EN

8.2.1 Configuration definition management commands	8-25
8.2.1.1 open	8-25
8.2.1.2 close	8-26
8.2.1.3 save	8-27
8.2.1.4 save config	8-29
8.2.1.5 restore config	8-31
8.2.1.6 new	8-32
8.2.2 Mode change commands	8-34
8.2.2.1 configure	8-34
8.2.2.2 exit	8-35
8.2.2.3 show	8-36
8.2.3 Flow control definition	8-37
8.2.3.1 flowcontrol	8-37
8.2.4 Jumbo frame function	8-40
8.2.4.1 jumbo frame	8-40
8.2.5 Rate control function	8-41
8.2.5.1 storm-control	8-41
8.2.6 Host functions (address definition)	8-43
8.2.6.1 ip host	8-43
8.2.6.2 ip default-gateway	8-45
8.2.6.3 hostname	8-46
8.2.7 MAC bridge functions	8-48
8.2.7.1 mac address-table aging-time	8-48
8.2.7.2 mac address-table static	8-49
8.2.8 Spanning tree protocol (STP) functions	8-52
8.2.8.1 spanning-tree	8-52
8.2.8.2 spanning-tree priority	8-54
8.2.8.3 spanning-tree max-age	8-55
8.2.8.4 spanning-tree hello-time	8-57
8.2.8.5 spanning-tree forward-time	8-58
8.2.8.6 spanning-tree port-priority	8-60
8.2.8.7 spanning-tree cost	8-61
8.2.8.8 spanning-tree bpdufilter	8-63
8.2.8.9 spanning-tree	8-65
8.2.9 Virtual LAN (VLAN) functions	8-67
8.2.9.1 vlan	8-67
8.2.9.2 switchport access vlan	8-69
8.2.9.3 switchport mode	8-71
8.2.9.4 switchport allowed vlan	8-73
8.2.9.5 switchport native vlan	8-76
8.2.10 Priority control functions (Class of Service)	8-78
	8-78
8.2.10.1 switchport priority default	8-78 8-80
0.4. IV.4 WII-UUCUC CUS-IIIdD	o-ou

C122-E003-02EN xix

8.2.11 Port	trunking functions	8-82
8.2.11.1	interface port-channel	8-82
8.2.11.2	channel-group	8-83
8.2.11.3	port-channel load-balance	8-86
8.2.12 IGM	P snooping functions	8-87
8.2.12.1	ip igmp snooping	8-87
8.2.12.2	ip igmp snooping vlan	8-89
8.2.12.3	ip igmp snooping vlan mrouter	8-91
8.2.12.4	ip igmp snooping vlan static	8-93
8.2.13 Port	mirroring functions	8-96
8.2.13.1	monitor session source	8-96
8.2.13.2	monitor session destination	8-98
8.2.14 Inter	face	8-100
8.2.14.1	interface	8-100
8.2.14.2	shutdown	8-102
8.2.14.3	speed	8-103
	duplex	
8.2.15 Acce	ess restriction functions	8-106
8.2.15.1	remote-access	8-106
8.2.16 Con	sole	8-110
8.2.16.1	line	8-110
8.2.16.2	exec-timeout	8-111
8.2.17 SNN	1P	8-113
8.2.17.1	snmp-server engineID local	8-113
8.2.17.2	snmp-server location	8-114
	snmp-server contact	
8.2.17.4	snmp-server user	8-117
	snmp-server host	
	snmp-server enable traps	
	P	
	Idap server	
	ldap dn	
	Idap ssl	
	et	
	telnet enable	
	ssh enable	
•		
	ntp server	
	ntp status	
_		
8.2.22.1	logging on	8-139
8.2.22.2	logging level	8-140

xx C122-E003-02EN

	8.2.22.3	logging host	8-142
8.3	Operation C	Commands	8-144
	8.3.1 Cons	sole-related commands	8-144
	8.3.1.1	clock set	8-144
	8.3.1.2	show clock	8-145
	8.3.1.3	show filelist	8-146
	8.3.1.4	show history	8-147
	8.3.1.5	terminal pager	8-148
	8.3.1.6	show terminal	8-149
	8.3.1.7	quit	8-152
	8.3.1.8	telnet	8-153
	8.3.1.9	ssh	8-156
	8.3.1.10	tftp	8-158
	8.3.2 Unit-	-related commands	8-161
	8.3.2.1	change	8-161
	8.3.2.2	clear config	8-163
	8.3.2.3	install	8-165
	8.3.2.4	reload	8-169
	8.3.2.5	show globalmac	8-170
	8.3.2.6	show memory	8-171
	8.3.2.7	show processes	8-173
	8.3.2.8	show system information	8-175
	8.3.2.9	show system status	8-178
	8.3.2.10	clear ramdisk	8-179
	8.3.2.11	eeprominit	8-181
	8.3.3 Port-	-related commands	8-182
	8.3.3.1	show interface status	8-182
	8.3.3.2	show interface counters	8-185
	8.3.3.3	show interface switchport	8-191
	8.3.3.4	show monitor session	8-193
	8.3.3.5	show portstat	8-195
	8.3.3.6	show port-channel	8-197
	8.3.4 IP-re	elated commands	8-200
	8.3.4.1	ip dhcp restart	8-200
	8.3.4.2	clear arp	8-201
	8.3.4.3	ping	8-202
	8.3.4.4	show arp	8-207
	8.3.4.5	show ip	8-208
	8.3.4.6	show ip default-gateway	8-210
	8.3.4.7	show ip host	8-211
	8.3.4.8	show ip socket	8-213
	8.3.4.9	traceroute	8-215
	8.3.5 VLA	N-related commands	8-219
	8.3.5.1	show vlan	8-219

C122-E003-02EN xxi

8.3.6 Brido	ge-related commands	8-222
8.3.6.1	show bridge	8-222
8.3.6.2	show bridge summary	8-226
8.3.6.3	show bridge aging-time	8-228
	clear bridge	
8.3.7 STP	-related commands	8-231
8.3.7.1	show spanning-tree status	8-231
8.3.7.2	show spanning-tree statistics	8-240
8.3.7.3	clear spanning-tree	8-244
•	related commands	
8.3.8.1	clear logging error	8-245
8.3.8.2	clear logging line	8-246
8.3.8.3	clear logging message	8-248
8.3.8.4	clear logging trap	8-249
	show logging error	8-250
8.3.8.6	show logging line	
8.3.8.7	55 5 5	
8.3.8.8	show logging trap	
	show logging	
8.3.9 Filter	ring/QoS-related commands	
8.3.9.1	show remote-access	
8.3.9.2	show storm-control	
	show wrr-queue cos-map	
8.3.10 Stati	stics management commands	8-266
	show ether statistics	
	clear ether statistics	
8.3.11 IGM	P snooping-related commands	8-294
	show ip igmp snooping	
	show ip igmp snooping mrouter	
	show mac address-table multicast	
	show ip igmp snooping statistics	
	clear ip igmp snooping statistics	
	P-related commands	
	show Idap	
	IP-related commands	
	show snmp-server	
	-related commands	
	ssh keygen	
	ssh keydel	
	show ssh	
8.3.15 NTP	-related command	8-314
8.3.15.1	show ntp	8-314

xxii C122-E003-02EN

Part 5 EFI

CHAPTER 9 EFI Overview	9-1
9.1 Boot Function	9-2
9.1.1 NVRAM variables for boot control	9-2
9.1.2 Boot processing order	9-3
9.1.3 Controlling auto-boot processing	9-4
CHAPTER 10 Boot Manager	10-1
10.1 Starting Boot Manager	10-1
10.2 Boot Manager Menu	10-2
10.3 Boot Option Maintenance Menu	10-4
10.3.1 Boot From a File window	10-5
10.3.2 Add a Boot Option window	10-6
10.3.3 Delete Boot Option(s) window	10-9
10.3.4 Change Boot Order window	10-11
10.3.5 Set Auto Boot Timeout window	10-13
10.3.6 Reset System	10-14
10.3.7 Exit	10-14
10.4 EFI Setup Menu	10-15
10.4.1 EFI Configuration Utility window	
10.4.2 Keyboard window	
10.4.3 SCSI Configuration Utility	10-19
CHAPTER 11 DVD Retry Boot	11-1
CHAPTER 12 EFI Shell and EFI Commands	12-1
12.1 Auto-startup File	12-1
12.2 EFI Shell Command Syntax	12-2
12.3 Output Redirection	12-3
12.4 Batch Script	12-4
12.5 List of EFI Shell Commands	
Appendix A Alternative Key Combinations for Some Special Keys	
on Serial Terminals	. A-1
Index	IN-1

C122-E003-02EN xxiii

Figures

Figure 1.1	Software covered in this manual	1-1
Figure 1.2	Window and its corresponding section in this manual	1-5
Figure 2.1	Frame configuration	2-3
Figure 2.2	Information frame	2-4
Figure 2.3	Submenu frame	2-6
Figure 2.4	Content display frame	2-7
Figure 2.5	Switching with Web-UI operations	2-13
Figure 3.1	[System Status] window	3-8
Figure 3.2	[System Event Log] window	3-10
Figure 3.3	[System Event Log Filtering Condition] window	3-13
Figure 3.4	[System Event Log wdd (Detail)] window	3-16
Figure 3.5	[System Information] window	3-18
Figure 3.6	[Firmware Information] window	3-20
Figure 3.7	System Setup window	3-21
Figure 3.8	[System Power Control] window	3-24
Figure 3.9	[LEDs] window	3-26
Figure 3.10	[Power Supply] window	3-27
Figure 3.11	[Fans] window	3-29
Figure 3.12	[Fans Status Clear] window	3-31
Figure 3.13	[Temperature] window	3-32
Figure 3.14	[SB#x] window (1/2)	3-34
Figure 3.15	SB#x [Status Clear] window (1/2)	3-40
Figure 3.16	SB#x [Status Clear] window (2/2)	3-41
Figure 3.17	[IO_Unit#x] window (1/2)	3-45
Figure 3.18	[XAI#x] window	3-51
Figure 3.19	[XDI#x] window	3-54
Figure 3.20	[CPCB] window	3-57
Figure 3.21	[KVM] window	3-59
Figure 3.22	[OP-Panel] window	3-61
Figure 3.23	[FANB] window	3-63
Figure 3.24	[PDB] window	3-64
Figure 3.25	[MMB#x] window	3-65
Figure 3.26	[GSWB#x] window	3-68
Figure 3.27	[PCI_Box#x] window (1/2)	3-71
Figure 3.28	Power Control 1 window	3-76
Figure 3.29	[Power Control] window (when no bootable partition	
	is available)	3-77
Figure 3.30	[Power Control] window (after power-off)	3-77
Figure 3.31	[Schedule Control] window	3-81

C122-E003-02EN xxv

Figure 3.32	[Schedule List] window	3-82
Figure 3.33	[Add/Edit Schedule] window	3-85
Figure 3.34	[USB/Video/DVD Switch] window	3-87
Figure 3.35	[Console Redirection Switch] window	3-89
Figure 3.36	[Partition Configuration] window	3-91
Figure 3.37	[Add SB/IO_Unit to Partition] window	3-94
Figure 3.38	[Remove SB/IOU from Partition] window	3-95
Figure 3.39	Partition Home window	3-97
Figure 3.40	[Reserved SB Configuration] window	3-98
Figure 3.41	[Information] window	3-100
Figure 3.42	[Boot Control] window	3-102
Figure 3.43	[ASR (Automatic Server Restart) Control] window	3-103
Figure 3.44	[Console Redirection-1] window	3-106
Figure 3.45	[Console Redirection-2] window	3-106
Figure 3.46	[Mode] window	3-107
Figure 3.47	[User List] window	3-110
Figure 3.48	[Add/Edit User] window	3-112
Figure 3.49	[Change Password] window	3-113
Figure 3.50	[Who] window	3-115
Figure 3.51	[Date/Time] window	3-116
Figure 3.52	[Network Interface] window	3-118
Figure 3.53	[Management LAN Port Configuration] window	3-120
Figure 3.54	[Network Protocols] window	3-122
Figure 3.55	[Refresh Rate] window	3-125
Figure 3.56	[SNMP Community] window	3-126
Figure 3.57	[SNMP Trap] window	3-128
Figure 3.58	[SNMP v3 Configuration] window	3-130
Figure 3.59	[Create CSR] window	3-132
Figure 3.60	Create CSR (In Progress) indicator	3-133
Figure 3.61	[Export Key/CSR] window	3-135
Figure 3.62	[Import Certificate] window	3-136
Figure 3.63	[Create Selfsigned Certificate] window	3-137
Figure 3.64	[Create SSH Server Key] window	3-139
Figure 3.65	Create SSH Server Key (In Progress) indicator	3-140
Figure 3.66	[Remote Server Management] window	3-141
Figure 3.67	[Edit User] window	3-143
Figure 3.68	[Access Control] window	3-144
Figure 3.69	[Edit Filter] window	3-146
Figure 3.70	[Alarm E-Mail] window	3-148
Figure 3.71	[Alarm Email Filtering Condition] window	3-150
Figure 3.72	[Mirror License] window	3-152

xxvi C122-E003-02EN

Figure 3.73	[32-way Upgrade License] window	3-153
Figure 3.74	[MMB Firmware Update] window (selection)	3-155
Figure 3.75	[GSWB Firmware Update] window	3-157
Figure 3.76	[PAL/SAL Firmware Update] window (selection)	3-159
Figure 3.77	[PAL/SAL Firmware Update] window (when All or an	
	SB is specified)	3-160
Figure 3.78	[PAL/SAL Firmware Update] window (when a partition	
	is specified)	3-160
Figure 3.79	[EFI Firmware Update] window	3-163
Figure 3.80	[BMC Firmware Update] window	3-165
Figure 3.81	[Backup/Restore MMB Configuration] window	3-167
Figure 3.82	[Backup EFI Configuration] window	3-169
Figure 3.83	[Restore EFI Configuration-1] window	3-170
Figure 3.84	[Restore EFI Configuration-2] window	3-171
Figure 3.85	[Maintenance Wizard] window	3-173
Figure 5.1	[Partition Information] window (Linux)	5-5
Figure 5.2	[Partition Information] window (Windows)	5-5
Figure 5.3	[CPUs] window	5-7
Figure 5.4	[DIMMs] window	5-8
Figure 5.5	[PCI Devices] window	5-10
Figure 5.6	[Ethernet Controller] window (Linux)	5-12
Figure 5.7	[Ethernet Controller] window (Windows)	5-13
Figure 5.8	[Storage controller] window	5-17
Figure 5.9	[Network Interfaces] window (Linux)	5-22
Figure 5.10	[Network Interfaces] window (Windows)	5-23
Figure 5.11	[Network Routing] window	5-25
Figure 5.12	[Disk Partitions] window	5-26
Figure 5.13	[Process List] window	5-27
Figure 5.14	[System File] (selection) window	5-31
Figure 5.15	[System File] (selection) Error window	5-33
Figure 5.16	[System File] (display) window	5-34
Figure 5.17	[Hardware Inventory] window	5-35
Figure 5.18	[Software Inventory] window	5-37
Figure 5.19	[Software Inventory -Detail-] window	5-39
Figure 5.20	[Agent Log] window	5-41
Figure 5.21	[Agent Log Filtering Condition] window	5-44
Figure 5.22	[SEL] window	5-47
Figure 5.23	[Export List] window	5-49
Figure 5.24	[Export] window	5-52
Figure 5.25	[Watchdog] window	5-55
Figure 5.26	[S.M.A.R.T.] window	5-57

C122-E003-02EN xxvii

Figure 7.1	GSWB connections	7-1
Figure 7.2	[GSWB Status] window	7-10
Figure 7.3	[Configuration Copy] window	7-12
Figure 7.4	[Information] window	7-14
Figure 7.5	[Host] window	7-16
Figure 7.6	[Upload Configuration] window (Admin privilege)	7-18
Figure 7.7	[Upload Configuration] window (CE privilege)	7-18
Figure 7.8	[Download Configuration] window	7-20
Figure 7.9	[Save Configuration] window	7-22
Figure 7.10	[Restore Configuration] window	7-23
Figure 7.11	[Active Image Change] window	7-25
Figure 7.12	[Error Log] window (standard display)	7-27
Figure 7.13	[Error Log] window (detailed display)	7-27
Figure 7.14	[Line Log] window	7-29
Figure 7.15	[Message Log] window	7-31
Figure 7.16	[Trap Log] window	7-33
Figure 7.17	Example of the message log file	7-34
Figure 7.18	[Log Setting] window	7-35
Figure 7.19	Internal configuration of the archived files	7-36
Figure 7.20	[Log Download] window	7-37
Figure 7.21	[SNMP Community] window	7-38
Figure 7.22	[SNMP 3 Configuration] window	7-40
Figure 7.23	[SNMP Trap] window	7-43
Figure 7.24	[Telnet] window	7-45
Figure 7.25	[SSH Status] window	7-46
Figure 7.26	[SSH Key Generate] window	7-48
Figure 7.27	[Remote Access] window	7-49
Figure 7.28	[Port Configuration (IO_Unit)] window	7-52
Figure 7.29	[Port Configuration (Front Panel)] window	7-53
Figure 7.30	[Port Configuration (port-channel)] window	7-53
Figure 7.31	[Port Status] window	7-55
Figure 7.32	[Destination Port] window	7-57
Figure 7.33	[Source Port] window	7-59
Figure 7.34	[Port Statistics] window	7-60
Figure 7.35	[Flow Control (IO_Unit)] window	7-64
Figure 7.36	[Flow Control (Front Panel)] window	7-65
Figure 7.37	[Flow Control (Partition)] window	7-65
Figure 7.38	[Rate Control (IOU)] window	7-67
Figure 7.39	[Rate Control (Front Panel)] window	7-67
Figure 7.40	[Rate Control (Partition)] window	7-68
Figure 7.41	[Jumbo Frame] window	7-70

xxviii C122-E003-02EN

Figure 7.42	[Aging Time] window	7-72
Figure 7.43	[Static MAC Address] window	7-73
Figure 7.44	[MAC Address Table] window	7-75
Figure 7.45	[Global Setting] window	7-77
Figure 7.46	[Interface Setting (IO_Unit)] window	7-79
Figure 7.47	[Interface Setting (Front Panel)] window	7-79
Figure 7.48	[Interface Setting (port-channel)] window	7-80
Figure 7.49	[Interface Setting (Partition)] window	7-80
Figure 7.50	[STP Status (Bridge status Enable)] window	7-82
Figure 7.51	[STP Status (Bridge status Disable)] window	7-82
Figure 7.52	[STP Status (Interface status)] window	7-84
Figure 7.53	[STP Statistics (bridge information)] window	7-86
Figure 7.54	[STP Statistics (interface information)] window	7-87
Figure 7.55	[VLAN ID Select] window	7-90
Figure 7.56	[VLAN Configuration] window	7-92
Figure 7.57	[VLAN Information] window	7-94
Figure 7.58	[Delete VLAN] window	7-95
Figure 7.59	[Native VLAN (IO_Unit)] window	7-96
Figure 7.60	[Native VLAN (Front Panel)] window	7-97
Figure 7.61	[Native VLAN (port-channel)] window	7-97
Figure 7.62	[Native VLAN (Partition)] window	7-98
Figure 7.63	[Default Priority (IO_Unit)] window	7-99
Figure 7.64	[Default Priority (Front Panel)] window	7-100
Figure 7.65	[Default Priority (port-channel)] window	7-100
Figure 7.66	[Default Priority (Partition)] window	7-101
Figure 7.67	[CoS Queue Map] window	7-103
Figure 7.68	[Channel Group] window	7-105
Figure 7.69	[Global Setting] window	7-108
Figure 7.70	VLAN Setting window (after a selection is made from	
	the menu)	7-109
Figure 7.71	[VLAN Setting] window (after a VLAN ID is selected or an	
	IGMP setting is changed)	7-110
Figure 7.72	[MAC Address] window	7-112
Figure 7.73	[Partition] window	7-114
Figure 7.74	[Power Control] window	7-116
Figure 7.75	[Power Control] window (for a [GSWB Status] window	
	operation)	7-117
Figure 7.76	[Reset] window	7-118
Figure 8.1	With a daughter	8-223
Figure 8.2	Without a daughter	8-224
Figure 8.3	With a daughter	8-267

C122-E003-02EN xxix

Figure 8.	.4	Without a daughter	8-267
Figure 9.	.1	EFI outline	9-1
Figure 10	0.1	Example of the displayed [Boot Manager Menu] window	10-2
Figure 10	0.2	Example of the displayed [Boot Option Maintenance Menu	
		(Main Menu)] window	10-4
Figure 10	0.3	Example of the displayed [Boot From a File] window	10-5
Figure 10	0.4	Example of the displayed [Add a Boot Option] window	10-6
Figure 10	0.5	Sample boot file (elilo.conf)	10-7
Figure 10	0.6	Boot option setting example	10-8
Figure 10	0.7	Boot Manager menu as it is displayed after a boot option	
		is added	10-8
Figure 10	8.0	Example of the displayed [Delete Boot Option(s)] window	10-9
Figure 10	0.9	Example of the displayed [Change Boot Order] window	10-11
Figure 10	0.10	Example of the displayed [Set Auto Boot Timeout] window	10-13
Figure 10	0.11	EFI Setup Menu as it is displayed immediately after startup	10-15
Figure 10	0.12	Example of the displayed [EFI Configuration Utility] window	10-16
Figure 10	0.13	Example of the displayed [Keyboard] window	10-17
Figure 10	0.14	Example of the displayed [LSI Logic Host Bus Adapters]	
		window of the SCSI Configuration Utility	10-19
Figure 10	0.15	Example of the displayed [Adapter Properties] window	10-20
Figure 10	0.16	Example of the displayed [Device Properties] window	10-22
Figure 10	0.17	Example of the displayed configuration change save screen	10-24
Figure 10	0.18	Example of the displayed Exit window	10-25
Figure 1	1.1	Sample window for DVD retry boot processing	11-1

XXX C122-E003-02EN

Tables

Table 2.1	User privilege levels	2-12
Table 3.1	Menus	3-1
Table 3.2	Displayed items in the [System Status] window	3-9
Table 3.3	Buttons in the [System Status] window	3-9
Table 3.4	Displayed items in the [System Event Log] window	3-11
Table 3.5	Buttons in the [System Event Log] window	3-11
Table 3.6	Displayed and setting items in the [System Event Log	
	Filtering Condition] window	3-14
Table 3.7	Buttons in the [System Event Log Filtering Condition] window	3-15
Table 3.8	Displayed items in the [System Event Log (Detail)] window	3-16
Table 3.9	Buttons in the [System Event Log (Detail)] window	3-17
Table 3.10	Displayed and setting items in the [System Information] window	3-18
Table 3.11	Buttons in the [System Information] window	3-19
Table 3.11	Displayed items in the [Firmware Information] window	3-20
Table 3.12	Displayed and setting items in the [System Configuration]	0-20
1 abic 5.15	window	3-21
Table 3.14	Buttons in the [System Setup] window	3-23
Table 3.14	Displayed and setting items in the [System Power Control]	J-20
	window	3-25
Table 3.16	Buttons in the [System Power Control] window	3-25
Table 3.17	Displayed and setting items in the [LEDs] window	3-26
Table 3.18	Button in the [LEDs] window	3-26
Table 3.19	Displayed items in the [Power Supply] window	3-27
Table 3.20	Displayed items in the [Fans] window	3-29
Table 3.21	Button in the [Fans] window	3-30
Table 3.22	Displayed and setting items in the [Fans Status Clear] window	3-31
Table 3.23	Buttons in the [Fans Status Clear] window	3-31
Table 3.24	Displayed items in the [Temperature] window	3-33
Table 3.25	Displayed and setting items in the [SB#x] window	3-35
Table 3.26	Button in the [SB#x] window	3-39
Table 3.27	Displayed and setting items in the [SB#x Status Clear] window	3-41
Table 3.28	Buttons in the [SB#x Status Clear] window	3-44
Table 3.29	Displayed and setting items in the [IO_Unit#x] window	3-46
Table 3.30	Button in the [IO_Unit#x] window	3-50
Table 3.31	Displayed and setting items in the [XAI#x] window	3-52
Table 3.32	Button in the [XAI#x] window	3-53
Table 3.33	Displayed and setting items in the [XDI#x] window	3-54
Table 3.34	Button in the [XDI#x] window	3-55
Table 3.35	Displayed and setting items in the [CPCB] window	3-58
Table 3.36	Button in the [CPCB] window	3-58
Table 3.37	Displayed and setting items in the [KVM] window	3-60
Table 3.38	Button in the [KVM] window	3-60

C122-E003-02EN xxxi

Displayed and setting items in the [OP-Panel] window	. 3-62
Displayed and setting items in the [FANB] window	. 3-63
Displayed and setting items in the [MMB#x] window	. 3-66
Displayed and setting items in the [GSWB#x] window	. 3-68
. ,	
. ,	
-	. 3-79
• • • • • • • • • • • • • • • • • • • •	. 3-81
Buttons in the [Schedule Control] window	. 3-82
Displayed and setting items in the [Schedule List] window	. 3-83
Buttons in the [Schedule List] window	. 3-83
Displayed and setting items in the [Add/Edit Schedule]	. 3-85
Displayed and setting items in the [USB/Video/DVD Switch]	
<u> </u>	. 5-60
· ·	. 3-89
_	. 000
· ·	. 3-92
· · · · · · · · · · · · · · · · · · ·	. 3-94
Displayed and setting items in the [Remove SB/IOU from	
Partition] window	. 3-96
Buttons in the [Remove SB/IO_Unit from Partition] window	. 3-96
Displayed and setting items in the [Partition Home] window	. 3-97
Buttons in the [Partition Home] window	. 3-97
Displayed and setting items in the [Reserved Configuration] window	. 3-99
Displayed and setting items in the [ASR (Automatic Server	
	. 3-104
Buttons in the [ASR (Automatic Server Restart) Control]	
window	
Displayed and setting items in the [Mode] window	. 3-107
• •	
Displayed and setting items in the [User List] window	. 3-110
	Button in the [OP-Panel] window. Displayed and setting items in the [FANB] window Displayed and setting items in the [PDB] window. Displayed and setting items in the [MMB#x] window. Displayed and setting items in the [GSWB#x] window. Displayed and setting items in the [GSWB#x] window. Button in GSWB#x window. Displayed items in the [PCl_Box#x] window Displayed and setting items in the [Power Control] window. Displayed and setting items in the [Schedule Control] window. Displayed and setting items in the [Schedule Control] window. Displayed and setting items in the [Schedule List] window. Displayed and setting items in the [Schedule List] window. Displayed and setting items in the [Add/Edit Schedule] window. Displayed and setting items in the [USB/Video/DVD Switch] window. Displayed and setting items in the [USB/Video/DVD Switch] window. Displayed and setting items in the [Console Redirection Switch] window. Displayed and setting items in the [Console Redirection Switch] window. Displayed and setting items in the [Partition Configuration] window. Displayed and setting items in the [Partition Configuration] window. Displayed and setting items in the [Remove SB/IO_Unit to Partition] window Buttons in the [Add SB/IO_Unit for Partition] window. Displayed and setting items in the [Remove SB/IOU from Partition] window Buttons in the [Remove SB/IO_Unit from Partition] window. Displayed and setting items in the [Remove SB/IOU from Partition] window. Buttons in the [Partition Home] window. Displayed and setting items in the [Reserved Configuration] window. Buttons in the [Spare Configuration] window. Displayed and setting items in the [Reserved Configuration] window. Displayed and setting items in the [Roserved Configuration] window. Displayed and setting items in the [Roserved Configuration] window. Displayed and setting items in the [Roserved Configuration] window. Displayed and setting items in the [Boot Control] window. Displayed and setting items in the [Roserved Configuration] window.

xxxii C122-E003-02EN

Table 3.78	Buttons in the [User List] window	3-111
Table 3.79	Displayed and setting items in the [Add/Edit User]	
	window	
Table 3.80	Buttons in the [Add/Edit User] window	3-113
Table 3.81	Displayed and setting items in the [Change Password]	
	window	3-114
Table 3.82	Buttons in the [Change Password] window	
Table 3.83	Displayed items in the [Who] window	
Table 3.84	Displayed and setting items in the [Date/Time] window	
Table 3.85	Buttons in the [Date/Time] window	3-117
Table 3.86	Displayed and setting items in the [Network Interface]	0.440
T	window	
Table 3.87	Buttons in the [Network Interface] window	3-119
Table 3.88	Displayed and setting items in the [Management LAN	0.404
T 11 0 00	Port Configuration] window	3-121
Table 3.89	Buttons in the [Management LAN Port Configuration]	2 404
T-bl- 2.00	Window	3-121
Table 3.90	Displayed and setting items in the [Network Protocols]	2 422
Table 2.01	window	3-122
Table 3.91	2.2. Buttons in the [Network Protocols] window	
Table 3.92	Displayed or setting item in the [Refresh Rate] window	
Table 3.93	Buttons in the [Refresh Rate] window	3-125
Table 3.94	Displayed and setting items in the [SNMP Community]	2 427
Table 2.05	Window	3-127
Table 3.95	Buttons in the [SNMP Community] window	
Table 3.96	Displayed and setting items in the [SNMP Trap] window Buttons in the [SNMP Trap] window	3-120
Table 3.97 Table 3.98	Displayed and setting items in the [SNMP v3 Configuration]	3-129
1 able 5.90	window	3-130
Table 3.99	Buttons in the [SNMP v3 Configuration] window	
Table 3.39	Displayed and setting items in the [Create CSR] window	
Table 3.100	Buttons in the [Create CSR] window	
Table 3.101	Buttons in the [Export Key/CSR] window	3-135
Table 3.102	Buttons in the [Import Certificate] window	
Table 3.104	Displayed and setting items in the [Create Selfsigned	0 100
14516 0:101	Certificate] window	3-137
Table 3.105	Buttons in the [Create Selfsigned Certificate] window	
Table 3.106	Displayed item in the [Create SSH Server Key] window	
Table 3.107	Button in the [Create SSH Server Key] window	
Table 3.108	Displayed and setting items in the [Remote Server	0 0
	Management] window	3-142
Table 3.109	Buttons in the [Remote Server Management] window	
Table 3.110	Displayed and setting items in the [Edit User] window	
Table 3.111	Buttons in the [Edit User] window	
Table 3.112	Displayed and setting items in the [Access Control] window	
Table 3.113	Buttons in the [Access Control] window	
Table 3.114	Displayed and setting items in the [Edit Filter] window	
Table 3.115	Buttons in the [Edit Filter] window	
Table 3.116	Displayed and setting items in the [Alarm E-Mail] window	

C122-E003-02EN xxxiii

Table 3.117	Buttons in the [Alarm E-Mail] window	3-148
Table 3.118	Displayed and setting items in the [Alarm Email Filtering	
	Condition] window	3-150
Table 3.119	Buttons in the [Alarm Email Filtering Condition] window	3-151
Table 3.120	Displayed and setting items in the [MMB Firmware Update]	
	window	
Table 3.121	Buttons in the [MMB Firmware Update] window	3-155
Table 3.122	Displayed and setting items in the [GSWB Firmware Update]	
	window	
Table 3.123	Buttons in the [GSWB Firmware Update] window	3-157
Table 3.124	Displayed and setting items in the [PAL/SAL Firmware	
	Update] window (selection)	3-161
Table 3.125	Displayed items in the [PAL/SAL Firmware Update] window	
	(when All or an SB is specified)	3-161
Table 3.126	Displayed items in the [PAL/SAL Firmware Update] window	
-	(when a partition is specified)	
Table 3.127	Buttons in the [PAL/SAL Firmware Update] window	3-161
Table 3.128	Displayed and setting items in the [EFI Firmware Update]	
T 11 0 100	window	
Table 3.129	Buttons in the [EFI Firmware Update] window	3-164
Table 3.130	Displayed and setting items in the [BMC Firmware Update]	0.405
T-1-1- 0 404	window	
Table 3.131	Buttons in the [BMC Firmware Update] window	
Table 3.132	Buttons in the [Backup/Restore MMB Configuration] window	3-167
Table 3.133	Displayed and setting items in the [Backup EFI Configuration]	2.460
Table 3.134	windowButtons in the [Backup EFI Configuration] window	
Table 3.134	Displayed and setting items in the [Restore EFI	3-108
Table 3.133	Configuration] window	2 171
Table 3.136	Buttons in the [Restore EFI Configuration] window	
Table 3.137	Buttons in the [Maintenance Wizard] window	
Table 4.1	Setting items of terminal software	
Table 4.2	CLI commands	
Table 5.1	Component status and background colors	
Table 5.2	Menus	
Table 5.3	Displayed items in the [Partition Information] window	
Table 5.4	Displayed items in the [CPUs] window	
Table 5.5	Displayed items in the [DIMMs] window	
Table 5.6	Displayed items in the [PCI Devices] window	
Table 5.7	Buttons in the [PCI Devices] window	
Table 5.8	Displayed and setting items in the [Ethernet Controller]	
	window	5-13
Table 5.9	Buttons in the [Ethernet Controller] window	
Table 5.10	Displayed and setting items in the [Storage Controller]	
	window	5-18
Table 5.11	Buttons in the [Storage Controller] window	
Table 5.12	Displayed items in the [Network Interfaces] window	
Table 5.13	Displayed items in the [Network Routing] window	5-25
Table 5.14	Displayed items in the [Disk Partitions] window	

xxxiv C122-E003-02EN

Table 5.15	Displayed and setting items in the [Process List] window	5-28
Table 5.16	Buttons in the [Process List] window	5-29
Table 5.17	Displayed item in the [System File] (selection) window	5-32
Table 5.18	Buttons in the [System File] (selection) window	5-32
Table 5.19	Button in the [System File] (display) window	5-34
Table 5.20	Displayed items in the [Hardware Inventory] window	5-36
Table 5.21	Displayed items in the [Software Inventory] window	5-38
Table 5.22	Buttons in the [Software Inventory] window	5-38
Table 5.23	Displayed items in the [Software Inventory -Detail-] window	5-39
Table 5.24	Button in [Software Inventory -Detail-] window	5-40
Table 5.25	Displayed and setting items in the [Agent Log] window	5-42
Table 5.26	Buttons in the [Agent Log] window	5-42
Table 5.27	Displayed and setting items in the [Agent Log Filtering Condition] window	5-44
Table 5.28	Buttons in the [Agent Log Filtering Condition] window	5-46
Table 5.29	Buttons in the [SEL] window	5-47
Table 5.30	Displayed and setting items in the [Export List] window	5-50
Table 5.31	Buttons in the [Export List] window	5-50
Table 5.32	Displayed and setting items in the [Export] window	5-52
Table 5.33	Buttons in the [Export] window	5-52
Table 5.34	Displayed and settings items in the [Watchdog] window	5-55
Table 5.35	Buttons in the [Watchdog] window	5-56
Table 5.36	Displayed and settings items in the [S.M.A.R.T.] window	5-58
Table 5.37	Buttons in the [S.M.A.R.T.] window	5-58
Table 6.1	Commands	6-2
Table 7.1	Functions	7-2
Table 7.2	Display for an IO_Unit belonging to a partition	7-4
Table 7.3	Display for an IO_Unit that does not belong to any partition	7-4
Table 7.4	Display for a front panel that belongs to a channel group	7-4
Table 7.5	Display for a front panel that does not belong to any channel group	7-4
Table 7.6	Display for a port-channel with interfaces belonging to it	7-4
Table 7.7	Display for a port-channel with no interface belonging to it	7-4
Table 7.8	Display for a partition with IO Units belonging to it	7-5
Table 7.9	Display for a partition with no IO_Unit belonging to it	7-5
Table 7.10	Web-UI menu configuration 1	7-6
Table 7.11	Web-UI menu configuration 2	7-6
Table 7.12	Displayed and setting items in the [GSWB Status] window	7-10
Table 7.13	Buttons in the [GSWB Status] window	7-10
Table 7.14	Displayed or setting item in the [Configuration Copy] window	7-13
Table 7.15	Buttons in the [Configuration Copy] window	7-13
Table 7.16	Displayed and setting items in the [Information] window	7-14
Table 7.17	Button in the [Information] window	7-15
Table 7.18	Displayed and setting items in the [Host] window	7-16
Table 7.19	Buttons in the [Host] window	7-17

Table 7.20	Displayed and setting items in the [Upload Configuration] window	7-19
Table 7.21	Buttons in the [Upload Configuration] window	7-19
Table 7.22	Displayed or setting item in the [Download Configuration]	, 10
Table 7.22	window	7-21
Table 7.23	Buttons in the [Download Configuration] window	7-21
Table 7.24	Displayed and setting items in the [Save Configuration]	1-21
Table 1.24	window	7-22
Table 7.25	Buttons in the [Save Configuration] window	7-22
Table 7.25	Displayed or setting item in the [Restore Configuration]	1-22
Table 1.20		7-24
Table 7.27	Buttons in the [Restore Configuration] window	7-2 4 7-24
		1-24
Table 7.28	Displayed and setting items in the [Active Image Change]	7 25
Table 7.20	Window	7-25 7-26
Table 7.29	Buttons in the [Active Image Change] window.	
Table 7.30	Displayed and setting items in the [Error Log] window	7-28
Table 7.31	Buttons in the [Error Log] window	7-28
Table 7.32	Displayed and setting items in the [Line Log] window	7-29
Table 7.33	Buttons in the [Line Log] window	7-29
Table 7.34	Displayed and setting items in the [Message Log] window	7-31
Table 7.35	Buttons in the [Message Log] window	7-31
Table 7.36	Displayed and setting items in the [Trap Log] window	7-33
Table 7.37	Buttons in the [Trap Log] window	7-33
Table 7.38	Displayed and setting items in the [Log Setting] window	7-35
Table 7.39	Buttons in the [Log Setting] window	7-35
Table 7.40	Displayed or setting item in the [Log Download] window	7-37
Table 7.41	Buttons in the [Log Download] window	7-37
Table 7.42	Displayed and setting items in the [SNMP Community]	7.00
T 11 7 40	window	7-39
Table 7.43	Buttons in the [SNMP Community] window	7-39
Table 7.44	Displayed and setting items in the [SNMP 3 Configuration]	7 44
Table 7.45	window	7-41
Table 7.45	Buttons in the [SNMP 3 Configuration] window	7-42
Table 7.46	Displayed and setting items in the [SNMP Trap] window	7-43
Table 7.47	Buttons in the [SNMP Trap] window	7-44
Table 7.48	Displayed and setting items in the [Telnet] window	7-45
Table 7.49	Buttons in the [Telnet] window	7-46
Table 7.50	Displayed and setting items in the [SSH Status] window	7-47
Table 7.51	Buttons in the [SSH Status] window	7-47
Table 7.52	Displayed and setting items in the [SSH Key Generate] window	7-48
Table 7.53	Buttons in the [SSH Key Generate] window	7-48
Table 7.54	Displayed and setting items in the [Remote Access]	7.50
T-61- 7.55	window	7-50
Table 7.55	Buttons in the [Remote Access] window	7-50
Table 7.56	Displayed and setting items in the [Port Configuration]	- - ·
T-L! 7.55	window	7-54
Table 7.57	Buttons in the [Port Configuration] window	7-54
Table 7.58	Displayed and setting items in the [Port Status] window	7-56

xxxvi C122-E003-02EN

Table 7.59	Buttons in the [Port Status] window	7-56
Table 7.60	Displayed and setting items in the [Destination Port]	
	window	7-57
Table 7.61	Buttons in the [Destination Port] window	7-57
Table 7.62	Displayed and setting items in the [Source Port] window	7-59
Table 7.63	Buttons in the [Source Port] window	7-59
Table 7.64	Displayed and setting items in the [Port Statistics] window	7-61
Table 7.65	Buttons in the [Port Statistics] window	7-62
Table 7.66	Displayed and setting items in the [Flow Control] window	7-66
Table 7.67	Buttons in the [Flow Control] window	7-66
Table 7.68	Displayed and setting items in the [Rate Control] window	7-68
Table 7.69	Buttons in the [Rate Control] window	7-69
Table 7.70	Displayed or setting item in the [Jumbo Frame] window	7-70
Table 7.71	Buttons in the [Jumbo Frame] window	7-70
Table 7.72	Displayed or setting item in the [Aging Time] window	7-72
Table 7.73	Buttons in the [Aging Time] window	7-72
Table 7.74	Displayed and setting items in the [Static MAC Address]	
	window	7-73
Table 7.75	Buttons in the [Static MAC Address] window	7-74
Table 7.76	Displayed and setting items in the [MAC Address Table]	
	window	7-75
Table 7.77	Buttons in the [MAC Address Table] window	7-76
Table 7.78	Displayed and setting items in the [Global Setting] window	7-77
Table 7.79	Buttons in the [Global Setting] window	7-78
Table 7.80	Displayed and setting items in the [Interface Setting]	
	window	7-81
Table 7.81	Buttons in the [Interface Setting] window	7-81
Table 7.82	Displayed and setting items in the [STP Status (Bridge	
	status)] window	7-83
Table 7.83	Displayed and setting items in the [STP Status	
	(Interface status)] window	
Table 7.84	Buttons in the [STP Status] window	7-85
Table 7.85	Displayed and setting items in the [STP Statistics] window	7-87
Table 7.86	Buttons in the [STP Statistics] window	7-88
Table 7.87	Displayed or setting item in the [VLAN ID Select] window	7-90
Table 7.88	Buttons in the [VLAN ID Select] window	7-90
Table 7.89	Displayed and setting items in the [VLAN Configuration]	
	window	7-93
Table 7.90	Buttons in the [VLAN Configuration] window	7-93
Table 7.91	Displayed or setting item in the [VLAN Information] window	7-94
Table 7.92	Buttons in the [VLAN Information] window	7-94
Table 7.93	Displayed and setting items in the [Delete VLAN] window	7-95
Table 7.94	Buttons in the [Delete VLAN] window	7-95
Table 7.95	Displayed or setting item in the [Native VLAN] window	7-98
Table 7.96	Buttons in the [Native VLAN] window	7-98
Table 7.97	Displayed or setting item in the [Default Priority] window	7-101
Table 7.98	Buttons in the [Default Priority] window	
Table 7.99	Weighting in each Queue	
Table 7.100	Default QoS map	7-102

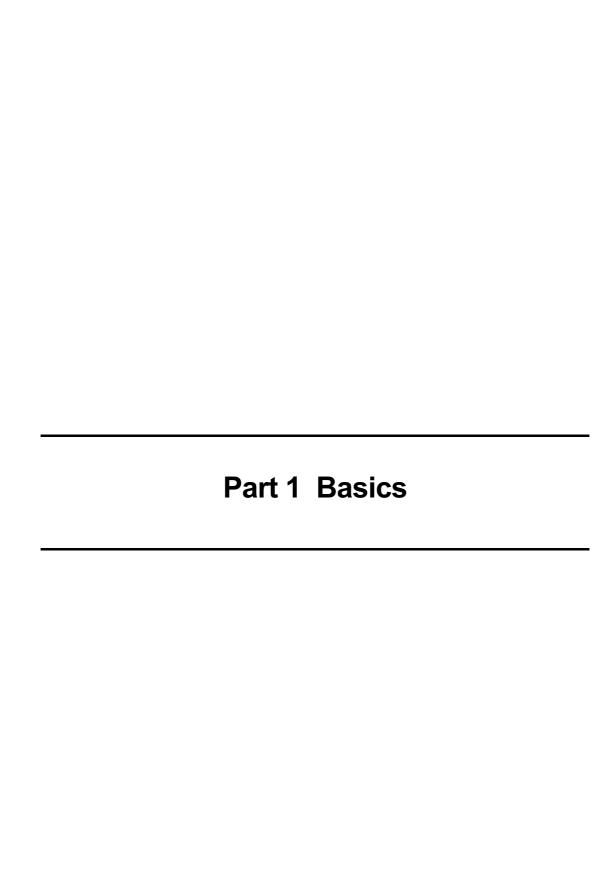
C122-E003-02EN xxxvii

Table 7.101	Displayed and setting items in the [CoS Queue Map]	
	window	
Table 7.102	Buttons in the [CoS Queue Map] window	. 7-103
Table 7.103	Displayed and setting items in the [Channel Group] window	. 7-106
Table 7.104	Buttons in the [Channel Group] window	
Table 7.105	Displayed or setting item in the [Global Setting] window	. 7-108
Table 7.106	Buttons in the [Global Setting] window	. 7-108
Table 7.107	Displayed or setting item in the [VLAN Setting] window	
	(after selection is made from the menu)	. 7-109
Table 7.108	Displayed and setting items in the [VLAN Setting] window	
	(after a VLAN ID is selected or an IGMP setting is	
	changed)	
Table 7.109	Buttons in the [VLAN Setting] window	
Table 7.110	Displayed and setting items in the [MAC Address] window	. 7-112
Table 7.111	Buttons in the [MAC Address] window	. 7-113
Table 7.112	Displayed and setting items in the [Partition] window	. 7-114
Table 7.113	Buttons in the [Partition] window	. 7-115
Table 7.114	Displayed or setting item in the [Power Control] window	. 7-116
Table 7.115	Buttons in the [Power Control] window	. 7-116
Table 7.116	Displayed or setting item in the [Reset] window	. 7-118
Table 7.117	Buttons in the [Reset] window	. 7-118
Table 8.1	Command modes	
Table 8.2	User privileges and command modes	. 8-2
Table 8.3	Port numbers and interface names	
Table 8.4	Error messages of the configuration definition commands	
Table 8.5	Examples of input	. 8-8
Table 8.6	Function keys	
Table 8.7	Error messages of the operation commands	
Table 8.8	Configuration definition management	
Table 8.9	Mode change	
Table 8.10	Flow control function	
Table 8.11	Jumbo frame function	
Table 8.12	Rate control function	
Table 8.13	Host function (address definition)	
Table 8.14	MAC bridge function	
Table 8.15	Spanning tree protocol (STP) function	
Table 8.16	Virtual LAN (VLAN) function	
Table 8.17	Priority control function (Class of Service)	
Table 8.18	Port trunking function	
Table 8.19	IGMP snooping function	
Table 8.20	Port mirroring function	
Table 8.21	Interface	
Table 8.22	Access restriction function	
Table 8.23	Console	
Table 8.24	SNMP	
Table 8.25	LDAP	
Table 8.26	telnet	
Table 8.27	ssh	
Table 8.28	ntp	. 8-19

xxxviii C122-E003-02EN

Table 8.29	Log	8-19
Table 8.30	Console-related commands	8-20
Table 8.31	Device-related commands	
Table 8.32	Port-related commands	8-21
Table 8.33	IP-related commands	8-21
Table 8.34	VLAN-related command	8-22
Table 8.35	Bridge-related commands	8-22
Table 8.36	STP-related commands	8-22
Table 8.37	Log-related command	8-23
Table 8.38	Filtering/QoS-related commands	8-23
Table 8.39	Statistics management	8-23
Table 8.40	IGMP-related commands	8-24
Table 8.41	LDAP-related command	8-24
Table 8.42	SNMP-related command	8-24
Table 8.43	SSH-related commands	8-24
Table 8.44	NTP-related command	8-24
Table 8.45	Port and displayed statistical information	8-268
Table 8.46	Guide to key generation time	8-309
Table 10.1	Display items in the [Boot Manager Menu] window	
Table 10.2	Keys used for Boot Manager operation	10-3
Table 10.3	Outline of functions available in the [Boot Option	
	Maintenance Menu (Main Menu)] window	10-4
Table 10.4	Functions of submenus available in the Delete Boot	
	Option(s) window	10-10
Table 10.5	Keys used for operation on the [Delete Boot Option(s)]	
	window	10-10
Table 10.6	Functions of submenus available in the [Change Boot	
	Order] window	10-11
Table 10.7	Keys used for operation on the [Change Boot Order]	
	window	10-12
Table 10.8	Functions of submenus available in the [Set Auto Boot	
	Timeout] window	
Table 10.9	Functions of the EFI Setup Menu	10-15
Table 10.10	Symbols displayed for the [EFI Configuration Utility]	
	window	10-17
Table 10.11	Items displayed in the [Keyboard] window	10-18
Table 10.12	Keys used for SCSI Configuration Utility operation	
Table 10.13	Items displayed in the [Adapter Properties] window	
Table 10.14	Items displayed in the [Device Properties] window	
Table 10.15	Items	10-24
Table 10.16	Items displayed in the Exit window	10-25
Table 12.1	Wildcards	12-2
Table 12.2	Special strings	12-3
Table 12.3	EFI shell commands	12-5
Table A 1	Special keys and their alternatives	Δ-1

C122-E003-02EN xxxix



CHAPTER 1 Structure of This manual and How to Read It

This manual describes operation of software on the PRIMEQUEST-series machine.

Figure 1.1 shows the main types of software running on this server:

MMB firmware : Part II
PSA : Part III
GSWB firmware : Part IV
EFI firmware : Part V

Each part of the manual corresponds to one type of software.

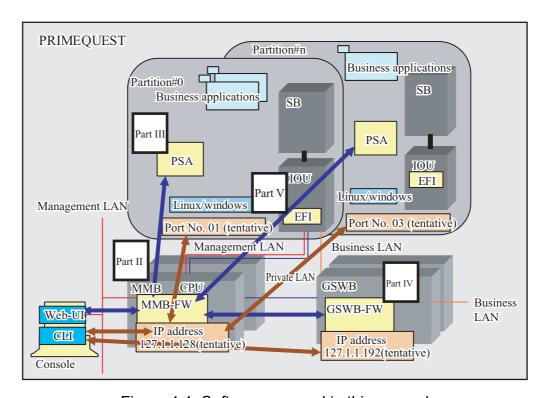


Figure 1.1 Software covered in this manual

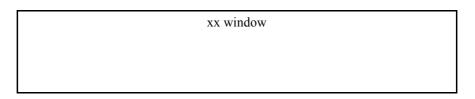
1.1 Conventions Used in This Manual

MMB, PSA, and GSWB descriptions in Parts II to IV are organized in sections according to the windows and commands that are described.

This section describes the format of the descriptions in Parts II to IV.

Format of window descriptions

Each Web window description has the following format:



A window screenshot is provided. For a window whose display varies depending on the Web browser, the window displayed in Microsoft Internet Explorer is shown.

Item	Description
Name of item 1 in the window	Item 1 is described.
Name of item 2 in the window	Item 2 is described.
:	:

Names of displayed items in the window are listed together with their descriptions.

Button	Description	
Name of button 1 in window	The function of button 1 is described.	
Name of button 2 in window	The function of button 2 is described.	
:	:	

Names of displayed buttons in the window are listed together with their descriptions.

(1) Menu operation

The menu operating procedure for displaying the window is described.

(2) GUI operation

The operating procedure with the window is described.

1-2 C122-E003-02EN

Format of command descriptions

Each command description has the following format:

(1) Synopsis

The command syntax is described as follows:

- A variable to which a value must be assigned is enclosed in <>.
- An optional element is enclosed in [].
- A selection of optional keywords, which are delimited by |, is enclosed in [].
- A selection of required keywords, which are delimited by |, is enclosed in { }.

```
The command syntax is shown in a box.
```

(2) Options

Command options are described.

(3) Examples

Examples of using the command are shown.

```
Example of the command
```

Screen operation notations

Window operations are described as follows in this manual:

Web UI menu operations

shown.)

```
[ ] \rightarrow [ ]
```

Example: Description of the operating procedure for displaying the [System Status] window

Click [System] → [System Status]. (Select the items in the order

• Description involving multiple menu items that are at the same level

```
[ ]/[ ]/[ ]
```

Example: Description of the operating procedure for displaying the IO_Unit, front panel, port-channel, or partition information in the [Port Configuration] window

Click [Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Configuration] \rightarrow [IO Unit]/[Front Panel]/[port-channel]/[Partition].

• Description of one of multiple components (They are actually represented by a number on the Web-UI.)

Component-name#x

Example: Description of a partition number at the second level Click [Partition] \rightarrow [Partition#x] \rightarrow [Mode].

1-4 C122-E003-02EN

1.2 Correspondence between Windows and Parts of This Manual

Descriptions of operation from windows in this manual are based on the menu operations provided by the type of software used. This also applies to command descriptions in the manual.

Most operations of the PRIMEQUEST-series machine are performed from MMB Web-UI windows. Also, PSA and GSWB Web-UI windows are used from the MMB Web-UI windows.

Figure 1.2 shows an example of the correspondence between windows and parts of the manual.

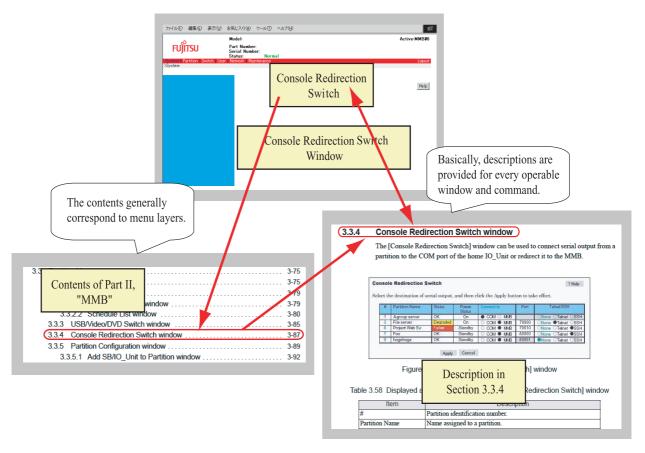


Figure 1.2 Window and its corresponding section in this manual

The contents of the manual generally correspond to menu layers.

Basically, the manual has operation descriptions for every operable window and command.

To find out the software corresponding to a window, check the submenu hierarchy (breadcrumb trail) that is displayed below the navigation bar in the window. The menu path to the displayed content is displayed there.

- An example of a submenu path is "Partition>Partion#0>PSA>Network>Network Interface".
- A submenu path that includes "PSA" indicates a PSA Web-UI window.
- A submenu path that includes "Switch" indicates a GSWB Web-UI window.
- A submenu path other than the above indicates an MMB Web-UI window.

1-6 C122-E003-02EN

CHAPTER 2 Basic Operations

The PRIMEQUEST-series machine provides two user interfaces for its server management board, referred to as the management board (MMB), containing a dedicated processor:

- The Web user interface (Web-UI) enables operation and management by the user through a Web browser running on a PC or workstation (referred to collectively as a PC, in this document).
- The command line interface (CLI) enables operation by the user through a serial port or remote PC connection via a management LAN.

This chapter describes common Web-UI window operations and basic operations with the MMB for management and operation of the PRIMEQUEST-series machine. Basic operations from the CLI are described in the chapter on CLI operations in each part of this manual.



Malfunction

The MMB Web-UI supports the Web browsers listed below. Note that other browsers may not display Web-UI windows correctly.

- Microsoft® Internet Explorer (IE) v5.5 (SP2) and later
- Netscape v7.02 and later

2.1 Web-UI Windows

The user can select the desired font size in these windows. The system status is indicated by text. It is also indicated by colors so that the user can easily recognize the current status. Three color patterns classify the status as normal, warning, or error:

Normal status

The window background color remains the same.

Warning status

Yellow indicates the warning status.

For example, if a unit is in the warning status, the table frame that displays the status has a yellow background.

• Error status

Red indicates the error status.

For example, if a unit is in the error status, the table frame that displays the status has a red background.

2-2 C122-E003-02EN

2.2 Frame Configuration

Each Web-UI window consists of three frames as shown below.

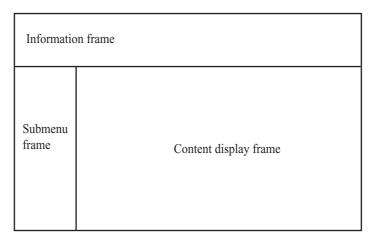


Figure 2.1 Frame configuration

• Information frame

PRIMEQUEST-series machine information, such as a model name and part number, is displayed. The user can check this information to easily identify the system.

• Submenu frame

A tree view menu is displayed. Selecting a menu item displays the corresponding window in the content display frame, which displays status information and is used to make settings.

• Content display frame

A window for displaying status information and specifying functions is displayed.

2.3 Information Frame

This section describes the information that is always displayed in the information frame.

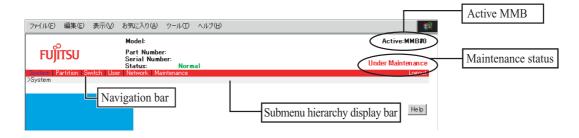


Figure 2.2 Information frame

- Model
 - A PRIMEQUEST model name is displayed.
- Part Number
 - A PRIMEQUEST part number is displayed.
- Serial Number
 - A PRIMEQUEST serial number is displayed.
- Status

The status of the PRIMEQUEST-series machine as a whole is displayed. The following three system statuses can be displayed.

Status	Displayed color	Icon
Normal	Green	(None)
Warning	Yellow	Black exclamation mark (!) in a yellow triangle
Error	Red	White X mark in a red circle

Clicking the system status displays the [System Event Log] window.

Active MMB

The number of the active MMB connected to the Web-UI is displayed.

2-4 C122-E003-02EN

• Maintenance status

"Under Maintenance" is displayed in orange while the PRIMEQUEST-series machine is being maintained by a maintenance engineer using the [Maintenance Wizard] menu.

Nothing is displayed for this status when the PRIMEQUEST-series machine is not under maintenance.

• Navigation bar

Any of the menus can be selected for display in the submenu frame. The name of the selected menu is displayed in black, and the names of the other menus, which are not selected, are displayed in white.

Submenu hierarchy display bar
 The path to the submenu displayed in the submenu frame is displayed. Clicking a level in the path displays the corresponding window.

• [Logout] Clicking [Logout] results in logout from the Web-UI.

2.4 Submenu Frame

The submenu frame displays the menu selected from the navigation bar in the information frame.

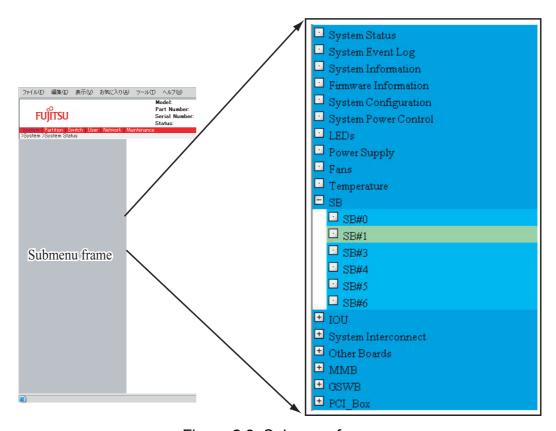


Figure 2.3 Submenu frame

The following applies to the displayed menu:

- Up to three layers of submenus are displayed.
- One of the following icons is displayed to the left of each submenu item to indicate whether the item has a lower layer:
 - + : The submenu item has a lower layer of items. :
 - : The submenu item has a lower layer of items, and the expanded node displays these items.
 - : The submenu item has no lower layer of items.
- A submenu item is displayed in reverse video when the cursor is placed on it.
- Selection of an item is indicated by a different background color.

2-6 C122-E003-02EN

2.5 Content Display Frame

The content display frame displays the window corresponding to the menu item selected from the navigation bar in the information frame or from the submenu in the submenu frame.

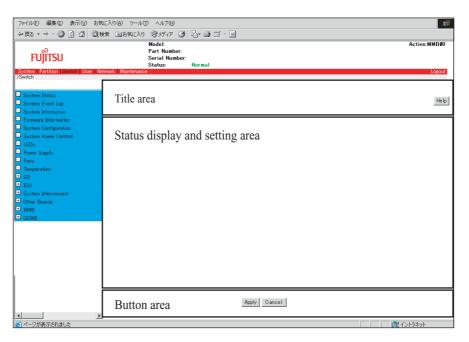


Figure 2.4 Content display frame

The content display frame is split into the following three areas:

• Title area

This area displays the title of the displayed content. The area also has the [Help] button, which is used to display the Help for the content, and the [Refresh] button, which is used to reload data.

Clicking the [Help] button displays the Help. The Help window is displayed when the button is clicked.

The [Refresh] button reloads only the data in the content display frame. The [Refresh] button is displayed only in a window subject to automatic refresh, and it is not displayed in a window used only for configuring data settings without allowing automatic status changes.

Status display and setting area
 This area displays status information and settings for the displayed content.
 Components such as input fields, radio buttons, and check boxes are grayed out for users who have only the privilege to display information, thereby preventing them

Button area

from configuring settings.

This area displays buttons used for actions involving the data in the status display and setting area. The [Apply] and [Cancel] buttons are usually displayed. Note that the button area is not displayed in cases where the displayed content requires no input or the user has only the privilege to display information.

Dialog box

Dialog boxes appear in this area for content display frame operations, such as clicking the [Apply] button. A dialog box notifies the user of an error, prompts for confirmation, or prompts for input of subsequently required information. The following two types of dialog boxes can be displayed:

Warning dialog box
 This dialog box notifies the user of an error such as an input error.
 Example:



Confirmation dialog box

This dialog box prompts the user to specify whether to continue processing. Example:



2-8 C122-E003-02EN

2.6 Basic Operations in Web-UI Windows

· Access procedure

The procedure for accessing the MMB from the Web-UI is described below.

1 Start a Web browser.

JavaScript must be enabled in the browser because the MMB uses JavaScript.

2 Enter one of the following addresses:

http:// nodename:adminport (HTTP)

https:// nodename:adminport (HTTP with a security function)

For "nodename," specify the virtual IP address, physical IP address, or corresponding FQDN of the active MMB.

For "adminport," specify the port number assigned to the MMB management port (The default value is 8081 for Standard or 432 for SSL.)

3 Enter the following user account and password, and then click the [Login] button.

Remarks:

If the MMB is starting for the first time or its settings have not been changed, the following default user account and password are in effect and you are asked to change the default password.

• User name ID : Administrator

• Password : Password set by the Fujitsu certified service engineer at the time of device setup.

The procedure for displaying the desired Web-UI window is described below.

- 1 Select the appropriate menu item from the navigation bar in the information frame to display the corresponding menu in the submenu frame.
 - The submenu frame then displays the menu.
- 2 Select the window from the submenu displayed in the submenu frame. The content display frame then displays the window.
- 3 Confirm and specify information in the window.
- 4 To return to the next higher layer of the menu, click the ← (back) button on the toolbar.

The content display frame displays the window as the next higher layer of the menu.

The step for exiting from the Web-UI window is described below.

5 Click [Logout] at the right end of the navigation bar in the information frame. This results in logout from the Web-UI.

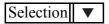
Displaying and using a Window

Each field in a window can be displayed and used as follows:

Character string input field (text field)
 A character string can be entered in the field.

Input of a character string

Selection field (pulldown list)



Setting button (button)



- [Apply] button

When this button is clicked, the system checks the validity of the data entered in character string input fields and selected values in the selection fields and other specified data in the window. If invalid data is found, a warning dialog box appears.

For example, if the [Apply] button is clicked with an invalid IP address such as 255.255.255.255 entered in the IP address input field, the warning dialog box shown below appears.



When the [OK] button is clicked in the warning dialog box, the window scrolls until the input error location is displayed, and the input error location is displayed in reverse video.



If the entered data may have a significant effect on the system, a confirmation dialog box for continuing processing is displayed.

2-10 C122-E003-02EN

- [Cancel] button

When this button is clicked, the data entered in the character string input fields and selected values in the selection fields are not applied in the system, and the state prior to entry of the data is restored.

- Selection of a single option (radio button)

Clicking [O], an option button, selects the corresponding element. Only one button can be selected in the field.

Clicking [o] (off) changes it to [o] (on).



- Select ○ ○
- Selection of multiple options (check box)

Clicking $[\Box]$, a check box, selects the corresponding field.

Clicking $[\Box]$ (off) changes it to $[\blacksquare]$ (on).



- Link

Clicking a link results in a jump to the destination window.

LINK

- IP address input field

A number ranging from 0 to 255 can be entered in each input field.



- MAC address input field

A hexadecimal number ranging from 00 to FF can be entered in each input field. Case sensitivity is not considered for the hexadecimal numbers A, B, C, D, E, and F.



Note: During a download operation through the MMB Web-UI using Internet Explorer running under Windows XP SP2 or later, the dialog box for confirming the download destination may be blocked from opening. In this event, do as follows:

- 1 Click [Tool] \rightarrow [Internet Option] \rightarrow [Privacy] \rightarrow [Block Popups].
- 2 In the [Block Popups] dialog box, add the MMB URL to the addresses at "Address of Web site to allow."

2.7 User Privilege Levels

The following table lists the user privilege levels used to restrict operation of the PRIMEQUEST-series machine.

Table 2.1 User privilege levels

Privilege level	Description		
User	Permitted only to refer to the PRIMEQUEST-series machine status.		
	Specifying system configuration information and turning on or off		
	power to a partition are not permitted.		
CE	Permitted to refer to the PRIMEQUEST-series machine status.		
	Changes to user management and network settings are not permitted,		
	but turning on or off power to a partition or the system is permitted.		
	Maintenance operations are permitted.		
Operator	Permitted to refer to the system status and configure system settings.		
	Changes to user management settings or the LAN configuration are		
	not permitted.		
Administrator	Permitted to perform every type of operation.		

2-12 C122-E003-02EN

2.8 Switching to Operations with Software of Another Type

This section describes how to switch to operations with software of another type among the following types of software:

- MMB firmware
- PSA
- GSWB firmware
- EFI firmware

The Web-UI or CLI can be used to issue instructions for this operation from a PC connected to the management LAN.

Switching with Web-UI operations and switching with CLI operations are briefly described below.

Switching with Web-UI operations

Figure 2.5 shows an outline of switching with Web-UI operations.

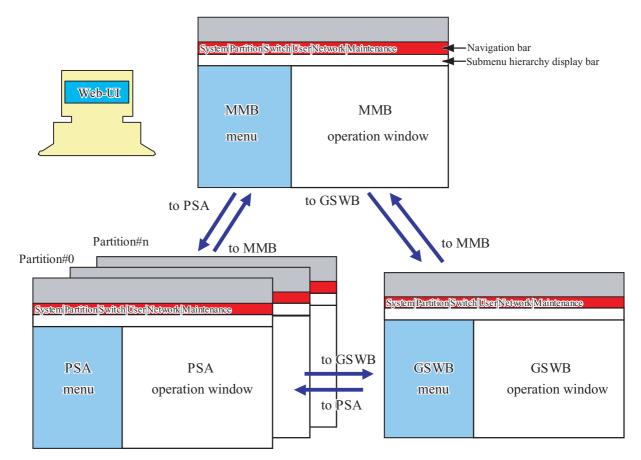


Figure 2.5 Switching with Web-UI operations

The navigation bar and menus are used for switching.

The current software used for operations can be determined from the submenu hierarchy display bar, which shows the menu path to the displayed window.

to PSA

- 1 Click [Partition] on the navigation bar.
- 2 Select [Partition#n] \rightarrow [PSA] from the Partition menu.
 - → The PSA menu of the selected Partition#n is displayed.

to GSWB

- 1 Click [Switch] on the navigation bar.
 - → The GSWB menu is displayed.

to MMB

- 1 Click [System] on the navigation bar.
 - → The MMB menu is displayed.

Switching with CLI operations

An outline of switching with CLI operations is provided below.

The Telnet or SHH command from a PC connected to the management LAN is used in CLI operations to switch to the target software for particular operations. The basic operating procedure is to log in to the OS or firmware of the target of this operation by executing the Telnet or SHH command with the corresponding IP address specified. If the operation target is PSA, the MMB IP address and the port number of the login partition are required. Information required for remote login, such as an IP address, the port number of a partition, an account ID and a password, must be specified in advance.

MMB

Specify the MMB IP address, and log in with a remote connection. (*1)

GSWB

Specify the GSWB0 (or GSWB1) IP address, and log in with a remote connection. (*2)

GSWB through the MMB CLI

Specify 0 or 1, and execute the connect GSWB command to log in to the GSWB CLI.

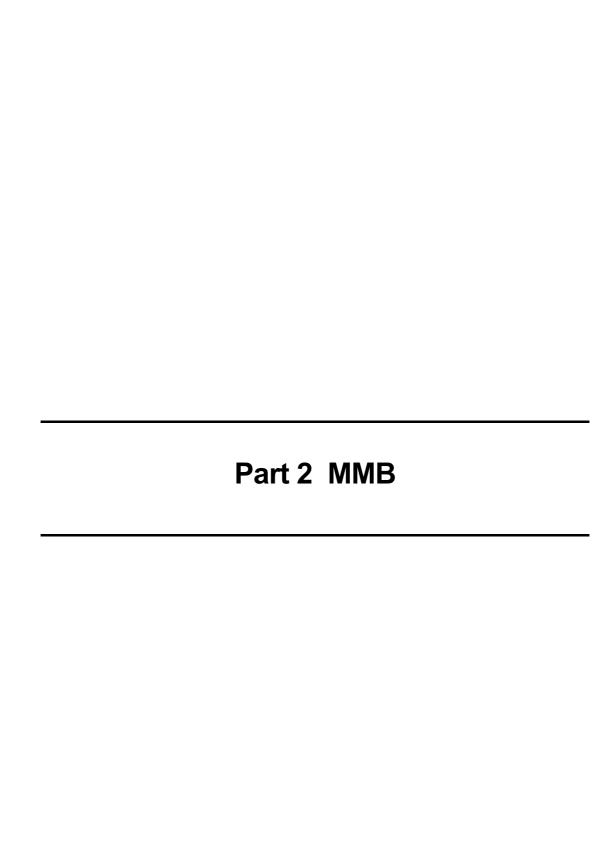
connect GSWB {0|1}

2-14 C122-E003-02EN

EFI

The EFI is used for special cases such as for changing boot control.

- 1 Specify an instruction to wait at EFI [Boot Manager Menu] during boot of the relevant partition, from the [Boot Control] menu of the MMB Web-UI.
- 2 Start the partition from the MMB Web-UI.
 - → The EFI [Boot Manager Menu] window is displayed.
 - *1 To log in to the MMB via telnet or SSH from an external device, you need to click [Network Configuration] and [Network Protocols] in that order and set the necessary parameters to [Enable] in the [Network Protocols] window.
 - *2 To log in to GSWB#0 or GSWB#1 via telnet or SSH from an external device, you can use one of two methods below:
 - Click [Switch], [GSWB#0], [Management], and [Telnet] in that order and set the necessary parameters to [Enable] in the [Telnet] window.
 - Click [Switch], [GSWB#0], [Management], and [SSH Status] in that order and set the necessary parameters to [Enable] in the [SSH Status] window.



CHAPTER 3 Web-UI Operations

This chapter describes how to operate and manage the PRIMEQUEST-series machine from the MMB Web-UI, and it provides a list of menus in the MMB Web-UI window and describes the associated windows and operations.

3.1 List of Menus in the Web-UI Window

This section provides a list of menus for the Web-UI.

The abbreviations in the Privilege column mean the following:

• RW: The user can read and write in the window concerned.

• RO : The user can only read in the window concerned.

• N/A: The window and submenu concerned are not displayed.

Table 3.1 Menus

Navigation Bar submenus						Priv	ilege				
Level 1	Level 2	Level 3	Level 4	Level 5	Admin	Operator	User	CE	Remarks		
System											
System Status				RW	RO	RO	RO	Displays the status of the entire system.			
System Event Log					RW	RO	RO	RO	Displays the system event log.		
System Information				RW	RO	RO	RO	Displays system information such as system and product names.			
Firmware Information				RO	RO	RO	RO	Displays firmware version information.			
]					RW	RO	RO	RW	Specifies the system configuration.		
System Power Control					RW	RO	RO	RO	Controls power.		
	LEDs				RW	RW	RW	RW	Displays LED statuses.		
	Power	Supply			RW	RO	RO	RO	Displays the power status.		

	Mayio	ation B	er euhi	menue		Driv	ilege		
_	<u> </u>	<u> </u>	I				1		
Level 1	Level 2	Level 3	Level 4	Level 5	Admin	Operator	User	CE	Remarks
	Fans				RO	RO	RO	RO	Displays fan statuses.
Temperature						RO	RO	RO	Displays the readings from temperature sensors in the PRIMEQUEST-series machine.
	SB								Displays only the submenus for the installed SBs.
		SB#0			RW	RW	RO	RW	Controls the SB and displays its status.
		SB#1			RW	RW	RO	RW	
		SB#2			RW	RW	RO	RW	
		SB#3			RW	RW	RO	RW	
SB#4					RW	RW	RO	RW	
		SB#5			RW	RW	RO	RW	
SB#6					RW	RW	RO	RW	
		SB#7			RW	RW	RO	RW	
IO_Unit									Displays only the submenus for the installed IO_Units.
		IO_U	nit#0		RW	RW	RO	RW	Controls the IO_Unit and displays its status.
		IO_U	nit#1		RW	RW	RO	RW	
		IO_U	nit#2		RW	RW	RO	RW	
		IO_U	nit#3		RW	RW	RO	RW	
		IO_U	nit#4		RW	RW	RO	RW	
		IO_U	nit#5		RW	RW	RO	RW	
		IO_U	nit#6		RW	RW	RO	RW	
IO_Unit#7					RW	RW	RO	RW	
System Interconnect									
XAI#0					RW	RW	RO	RW	Controls the XAI and displays its status.
		XAI#			RW	RW	RO	RW	
		XDI#	0		RW	RW	RO	RW	Controls the XDI and displays its status.
		XDI#	1		RW	RW	RO	RW	

3-2 C122-E003-02EN

Navigation Bar submenus		Priv	/ilege		
Level 5 Level 3 Level 2	Admin	Operator	User	CE	Remarks
XDI#2	RW	RW	RO	RW	
XDI#3	RW	RW	RO	RW	
Other Board					
СРСВ	RW	RW	RO	RW	Controls the CPCB and
****	DIV	DIV	D 0	DILI	displays its status.
KVM	RW	RW	RO	RW	Controls the KVM and displays its status.
OP-panel	RW	RW	RO	RW	Controls the OP-panel
puner	TC V	ICVV	RO	ICVV	and displays its status.
FANB	RW	RW	RO	RW	1 3
PDB	RW	RW	RO	RW	
MMB	RW	RW	RO	RO	
MMB#0	RW	RW	RO	RO	Displays MMB information and specifies LEDs.
MMB#1					Tion with specific 2225.
GSWB	RW	RW	RO	RO	Displays only the submenus for the installed GSWBs.
GSWB#0					Controls the GSWB and displays its status.
GSWB#1	RW	RW	RO	RO	
PCI_Box					This submenu is displayed for PCI_Box connections. Only the submenus for the installed PCI_Boxes are displayed.
PCI_Box#0	RW	RW	RO	RW	Displays the PCI_Box status.
PCI_Box#1	RW	RW	RO	RW	
PCI_Box#2	RW	RW	RO	RW	
PCI_Box#3	RW	RW	RO	RW	
PCI_Box#4	RW	RW	RO	RW	
PCI_Box#5	RW	RW	RO	RW	
PCI_Box#6	RW	RW	RO	RW	
PCI_Box#7	RW	RW	RO	RW	
Partition					

Navigation Bar submenus						Priv	rilege		
Level 1	Level 2	Level 3	Level 4	Level 5	Admin	Operator	User	CE	Remarks
		Contro			RW	RW	RO	RO	Power control of a partition
	Sched								
Schedule Control					RW	RW	RO	RO	Specifies information for scheduled operations.
		Sched	lule List		RW	RW	RO	RO	Sets the power-on and power-off schedule.
	USB/V	Video/D	VD Swi	tch	RW	RW	RO	RW	Switches to USB, Video, or DVD connection.
Console Redirection Switch					RW	RW	RO	RW	Specifies the output destination of console redirection for a partition.
Partition Configuration					RW	RO	RO	RO	Changes the partition configuration.
Split Configuration									
SB Split					RW	RO	RO	RO	Specifies SB splitting or merging.
		IO_U	nit Split		RW	RO	RO	RO	Specifies IO_Unit splitting or merging.
	Reserv	ved SB (Configu	ration	RW	RO	RO	RO	Specifies spare SBs.
	Partiti	on#0							
Information					RW	RO	RO	RO	Displays the status and other kinds of information about the partition.
Boot Control					RW	RW	RO	RO	Boot control of the partition
ASR Control				RW	RO	RO	RO	Specifies the automatic restart conditions for the partition.	
Console Redirection				RO	RO	RO	RO	Displays console output for the partition (input not allowed).	
		Mode			RW	RW	RO	RO	Sets a partition mode.

3-4 C122-E003-02EN

	Navig	gation E	Bar sub	menus	Privilege				
Level 1	Level 2	Level 3	Level 4	Level 5	Admin	Operator	User	CE	Remarks
		PSA			See Pa	rt 3, "P	SA," in	the	
						EQUES			
						псе Ма	nual: G	UI/	
					Comm				
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti	-				as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
Partition#11						as Partit			
	Partiti					as Partit			
	Partiti					as Partit			
	Partiti				Same as Partition#0				
	Partiti	on#15			Same as Partition#0				
Switch					See Part 4, "GSWB," in the				
	GSWI				PRIMEQUEST 480/440				
	GSWI	3#1			Reference Manual: GUI/				
	GSWI	3 Status			Comm	ands.			
	Config	guration	Copy						
User A	dminist	ration							
	User I	List			RW	N/A	N/A	N/A	Displays a list of
									registered user accounts,
									deletes these accounts,
									and is used to edit the
									accounts.
	Chang	ge Passw	ord		RW	RW	RW	RW	Changes the password of
									the current user account.
	Who				RO	RO	RO	RO	Displays the users
									connected to the MMB
Network Configuration									Web-UI.
Networ			n		DIII	D.C.	D.C.	D.O.	0 10 1 10 0 1
	Date/7	ime			RW	RO	RO	RO	Specifies the MMB date
									and time.

Network Interface RW RO RO RO Specifies the IP address used to access the MMB, etc.		Navio	ation B	ar subr	menus		Priv	/ilege		
Network Interface RW RO RO RO Specifies the IP address used to access the MMB, etc.	_					1		1		
Management LAN Port Configuration RW N/A N/A N/A Specifies the Port VLAN of the MMB HUB. Network Protocols RW RO RO RO Specifies the network protocols of the MMB. Refresh Rate RW RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.	evel 1	evel 2	_evel 3	evel 4	evel 5	∖dmin		Jser	H	Remarks
Management LAN Port Configuration RW N/A N/A N/A Specifies the Port VLAN of the MMB HUB. Network Protocols RW RO RO RO Specifies the network protocols of the MMB. Refresh Rate RW RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.		Netwo	rk Inter	face		RW	RO	RO	RO	Specifies the IP address
Management LAN Port Configuration RW N/A N/A N/A Specifies the Port VLAN of the MMB HUB. Network Protocols RW RO RO RO Specifies the network protocols of the MMB. Refresh Rate RW RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										used to access the
Configuration RW RO RO RO Specifies the network protocols of the MMB. Refresh Rate RW RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A N/A Specifies the trap transmission destination.										MMB, etc.
Network Protocols RW RO RO RO Specifies the network protocols of the MMB.		Manag	gement I	LAN Po	rt	RW	N/A	N/A	N/A	Specifies the Port
Network Protocols RW RO RO RO Specifies the network protocols of the MMB.		Config	guration							VLAN of the MMB
Refresh Rate RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										HUB.
Refresh Rate RW RW RW Specifies the refresh rate of an HTTP/HTTP page. SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.		Netwo	rk Proto	ocols		RW	RO	RO	RO	Specifies the network
SNMP Configuration RW N/A N/A N/A This submenu is displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										protocols of the MMB.
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displayed only if [Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										of an HTTP/HTTP page.
[Enable] is set for SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.		SNMP	Config	uration		RW	N/A	N/A	N/A	
SNMP in [Network Protocols]. SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										
SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										-
SNMP Community RW N/A N/A N/A Specifies the SNMP community. SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										-
SNMP Trap RW N/A N/A N/A Specifies the trap transmission destination.										-
SNMP Trap RW N/A N/A Specifies the trap transmission destination.			SNMI	P Comm	nunity	RW	N/A	N/A	N/A	_
transmission destination.										· · · · · · · · · · · · · · · · · · ·
			SNMI	P Trap		RW	N/A	N/A	N/A	
SNMPv3 Configuration RW N/A N/A Specifies the engine ID										
		SNMPv3 Configuration					N/A	N/A	N/A	Specifies the engine ID
and users unique to										_
SNMP v3.										SNMP v3.
SSL		SSL								
Create CSR RW N/A N/A Creates private keys and			Create	e CSR		RW	N/A	N/A	N/A	
CSRs.										
Export Key/CSR RW N/A N/A N/A Exports private keys and CSRs.		Export Key/CSR			SR	RW	N/A	N/A	N/A	
Import Certificate RW N/A N/A Installs a certificate.			Impor	t Certifi	cate	RW	N/A	N/A	N/A	Installs a certificate.
Create Selfsigned Certificate RW N/A N/A Creates a self-signed		Create Selfsigned Certificate				RW	N/A	N/A	N/A	Creates a self-signed
certificate.									certificate.	
SSH	SSH									
Create SSH Server Key RW N/A N/A Creates SSH server		Create SSH Server Key				RW	N/A	N/A	N/A	
private keys.										~ *
Remote Server Management RW N/A N/A Specifies the user		Remot	e Serve	r Manag	gement	RW	N/A	N/A	N/A	•
configuration used to										
control the MMB using										_
RMCP.										
Access Control RW N/A N/A Defines the IP filter to		Access	Contro	ol		RW	N/A	N/A	N/A	
enable access.										enable access.

3-6 C122-E003-02EN

	Navig	ation E	Bar subi	menus		Pri	vilege		
Level 1	Level 2	Level 3	Level 4	Level 5	Admin	Operator	User	CE	Remarks
	Alarm				RW	N/A	N/A	N/A	Defines e-mail notification for events.
License Mirror Licence						N/A	N/A	N/A	Registers a license to enable System Mirror.
	32-way Upgrade Licence					N/A	N/A	N/A	Registers a license for an upgrade from 16-way to 32-way.
Mainte	nance								
	Firmw	are Upo	late						
		MMB	3 Firmwa	are Update	RW	N/A	N/A	RW	Updates MMB firmware.
GSWB Firmware Update					RW	N/A	N/A	RW	Updates GSWB firmware.
PAL/SAL Firmware Update					RW	N/A	N/A	RW	Uploads PAL/SAL firmware to the MMB.
EFI Firmware Update					RW	N/A	N/A	RW	Used to select the partition for an update of the PAL/SAL/EFI firmware registered with the MMB.
		BMC	Firmwa	re Update	RW	N/A	N/A	RW	Updates the BMC firmware.
	Backu	p/Resto	re Confi	iguration					Backup/Restore of setting values.
	Backup/Restore MMB Configuration					N/A	N/A	RW	Backs up and restores MMB configuration information.
	Backup EFI Configuration					N/A	N/A	RW	Backs up EFI configuration information.
	Restore EFI Configuration					N/A	N/A	RW	Restores EFI configuration information.
	Mainte	enance V	Wizard		RW	N/A	N/A	RW	Wizard-based maintenance
	REMO	CS			See th	e <i>PRIM</i>	EQUES	T 480/	
		REM	CS				n Manud	al	
		Detail	led Setu	0	(C122	-E002E	EN).		

3.2 System Menu

The [System] menu displays the statuses of PRIMEQUEST hardware, which can be specified from this menu.

3.2.1 System Status window

The [System Status] window displays the status of the entire PRIMEQUEST-series machine.

Clicking the box containing a unit name in this window displays the detailed status view window for the unit.

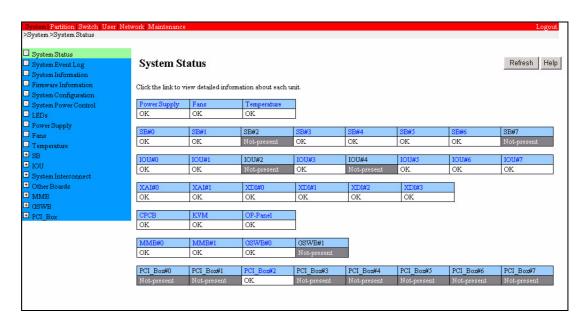


Figure 3.1 [System Status] window

This window displays the statuses of all devices in the PRIMEQUEST-series machine. The displayed status means the following:

OK: The device has no defect and it is operating normally.

Not present: This unit is not installed. This status is grayed out.

Warning: The device has encountered an event that is not serIO_Units but will possibly develop into a problem. The accompanying icon is a yellow triangle containing an exclamation mark (!).

3-8 C122-E003-02EN

Failed: The device has failed and must be isolated. The accompanying icon is a

red circle containing a white X.

Degraded: The device contains a faulty component but can continue operating when

the faulty component has been isolated. The accompanying icon is a

yellow triangle containing an exclamation mark (!).

Table 3.2 Displayed items in the [System Status] window

Item	Description
Power Supply	Status of power supply units in the PRIMEQUEST-series machine
Fans	Status of fans in the PRIMEQUEST-series machine
Temperature	Status of temperature sensors in the PRIMEQUEST-series
	machine
SB#0 to SB#7	Statuses of SB#0 to SB#7 in the PRIMEQUEST-series machine
IO_Unit#0 to IO_Unit#7	Statuses of IO_Unit#0 to IO_Unit#7 in the PRIMEQUEST-series
	machine
XAI#0, XAI#1	Statuses of XAI#0 and XAI#1 in the PRIMEQUEST-series
	machine
XDI#0 to XDI#3	Statuses of XDI#0 to XDI#3 in the PRIMEQUEST-series machine
CPCB	Status of the CPCB in the PRIMEQUEST-series machine
KVM	Status of the KVM board in the PRIMEQUEST-series machine
OP-Panel	Status of the operator panel in the PRIMEQUEST-series machine
MMB#0, MMB#1	Statuses of MMB#0 and MMB#1 in the PRIMEQUEST-series
	machine
GSWB#0, GSWB#1	Statuses of GSWB#0 and GSWB#1 in the PRIMEQUEST-series
	machine.
PCI_Box#0 to	Statuses of PCI_Box#0 to PCI_Box#7 connected to the
PCI_Box#7	PRIMEQUEST-series machine

Table 3.3 Buttons in the [System Status] window

Button	Description
Each box displaying the	Click the box containing a unit name to display its detailed status
status of a unit	view window. If the box of an uninstalled unit is clicked, its
	detailed status view window is not displayed.

(1) Menu operation

 $[System] \rightarrow [System Status]$

(2) GUI operation

1 To check the status of a device in detail, click the box containing its unit name.

A detailed status view window for the device is displayed.

3.2.2 System Event Log window

The [System Event Log] window displays events that occurred in the PRIMEQUEST-series machine and are stored in the system event log of the MMB.

More than 1,000 events can be stored in the system event log. When the system event log reaches the maximum number of entries, new events are saved in the system event log as the oldest events are deleted.

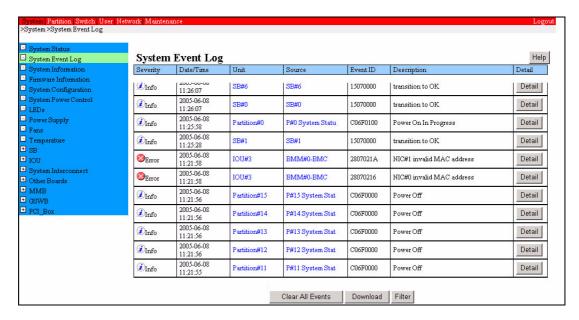


Figure 3.2 [System Event Log] window

The title row in the table remains visible during scrolling, and only the table body is scrolled.

3-10 C122-E003-02EN

Table 3.4 Displayed items in the [System Event Log] window

Item	Description					
Severity	Severity of an event or error:					
	Error: SerIO_Units problem such as a hardware failure					
	Warning: Event that is not serIO_Units but will possibly					
	develop into a problem					
	Info: Normal event such as partition power-on					
Date/Time	Local date and time at which an event or error occurred.					
	Format: yyyy-MM-dd HH:mm:ss					
Unit	Unit with the sensor that detected an event or error. For example,					
	"SB#0" is displayed for an error that occurred in CPU#A0 of					
	SB#0.					
	Clicking a displayed unit name displays the corresponding unit					
	information window (whose information includes the part number					
	and serial number of the unit).					
Source	Name of the sensor that detected an event or error.					
	Clicking a displayed sensor name displays the corresponding					
	sensor status window or the unit information window of the unit					
	containing the sensor.					
Event ID	ID (eight-digit hexadecimal number) that identifies an event.					
	For details on event ID assignment, see the PRIMEQUEST 480/					
	440 Reference Manual: Messages/Logs (C122-E004EN).					
Description	Description of an event or error.					
	If the event involves board insertion or removal, the part number					
	and serial number of the board are displayed.					

Table 3.5 Buttons in the [System Event Log] window

Button	Description
Clear All Events	Click the [Clear All Events] button to clear all of the events stored
	in the system event log.
	A confirmation dialog box opens for confirmation to clear the
	events.
Download	Click the [Download] button to download the event data stored in
	the system event log to the PC whose browser is displaying the
	Web-UI.
	The [Save File] dialog box opens before downloading begins.
	Specify the save destination directory and a file name.
Filter	Click the [Filter] button to open a dialog box for entering filtering
	conditions. Enter filtering conditions, and click the [Apply]
	button. The [System Event Log Filtering Condition] window is
	then displayed with the data that satisfies the entered filtering
	conditions.

Button	Description
Detail	Click the [Detail] button to display details on the selected event in
	the [System Event Log (Detail)] window.

 $[System] \rightarrow [System Event Log]$

(2) GUI operation

- Clearing all of the events stored in the system event log
 - 1 Click the [Clear All Events] button.A confirmation dialog box opens for confirmation to clear all of the events.
- · Downloading the event data stored in the system event log
 - Click the [Download] button.
 A dialog box is displayed to allow you to enter a save file path. Download the event data to the PC that displays the Web-UI.
- · Filtering the events displayed in the window
 - Click the [Filter] button.A dialog box for entering filtering conditions opens.
 - 2 Enter filtering conditions in the dialog box, and click the [Apply] button. The [System Event Log Filtering Condition] window is then displayed with the data satisfying the entered filtering conditions.
 - 3 For further filtering, enter additional conditions in the [System Event Log Filtering Condition] window, and click the [Apply] button.

 The [System Event Log] window is then displayed again, with only the events that satisfy the specified conditions.
- Displaying details on an event displayed in the window
 - Click the applicable [Detail] button.

 The [System Event Log (Detail)] window is displayed with details on the event.

3-12 C122-E003-02EN

3.2.2.1 System Event Log Filtering Condition window

The [System Event Log Filtering Condition] window can be used to identify events that occurred in the PRIMEQUEST-series machine. If conditions are entered in this window, the caller window displays the events that satisfy the entered conditions when it is redisplayed.

This filtering uses the AND operator for entered conditions.

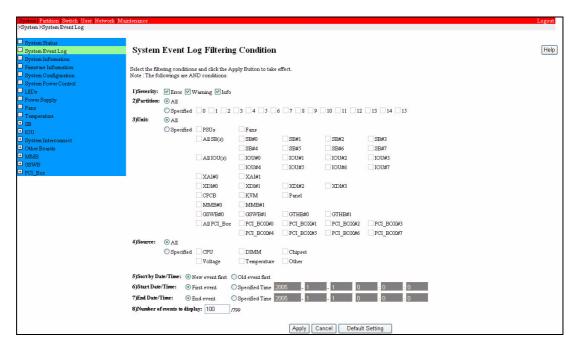


Figure 3.3 [System Event Log Filtering Condition] window

Table 3.6 Displayed and setting items in the [System Event Log Filtering Condition] window

Item	Description
Severity	Select the severities of the system events to be displayed for the
	system event log by checking the corresponding check boxes.
	More than one severity option can be selected.
	• Error: SerIO_Units problem such as a hardware failure
	• Warning: Event that is not serIO_Units but will possibly
	develop into a problem
	• Info: Normal event such as partition power-on
	By default, all of the options are selected.
Partition	Select partitions whose events are to be displayed by checking
	their check boxes.
	Select either [All] or [Specified] by clicking its radio button.
	Selecting [All] disables filtering of partitions. Selecting
	[Specified] enables checking of check boxes, so partitions can be
	selected. The default setting is [All].
Unit	Select units whose events are to be displayed.
	Select either [All] or [Specified] by clicking its radio button.
	Selecting [All] disables filtering of units.
	Selecting [Specified] enables filtering of units and checking of
	check boxes, so units can be selected. The default setting is [All].
Source	Select the sensors (e.g., CPU, DIMM) used to display the sources
	of any events and errors that occur.
	Select either [All] or [Specified] by clicking its radio button.
	Selecting [All] disables filtering of sources.
	Selecting [Specified] enables filtering and checking of check
	boxes, so the sources can be selected. The default setting is [All].
Sort by Date/Time	Specify the order for displaying events, from new events to old
	events or vice versa, by clicking a radio button.
	The default setting is [New event first].
Start Date/Time	Specify a time range for the event logs to be displayed.
	Select either [First event] or [Specified time] as the start time by
	clicking a radio button. If [Specified time] is selected, the start
	time can be entered.
	The default setting is [First event].
End Date/Time	Specify a time range for the event logs to be displayed.
	Select either [End event] or [Specified time] as the end time by
	clicking a radio button. If [Specified time] is selected, the end time
	can be entered.
	The default setting is [End event].

3-14 C122-E003-02EN

Item	Description
Number of events	Specify the number of events to be displayed for the log. The
to display	default setting is 100.
	The denominator indicates the number of events stored in the log.

Table 3.7 Buttons in the [System Event Log Filtering Condition] window

Button	Description
Apply	Specify conditions such as [Severity], [Partition], and [Unit], and
	click the [Apply] button. The specified filtering conditions are
	then set, and the [System Event Log] window is displayed again.
	The window displays events that satisfy the filtering conditions.
Cancel	Click the [Cancel] button to return to the [System Event Log]
	window. The events displayed in the window remain the same.
Default Setting	Click the [Default Setting] button to reset all items in this window
	to their default values.

 $[System] \rightarrow [System Event Log] \rightarrow [Filter]$ button at the bottom of the window

(2) GUI operation

- To display the [System Event Log] window in specified filtering conditions:
 - 1 Specify conditions and click the [Apply] button.

 The [System Event Log] window reappears. It displays a list of messages limited to those which fulfill the specified conditions. If no message that fulfills the conditions exists, the window displays its title and a message stating that there is no log to be displayed.
- To return to the [System Event Log] window:
 - 1 Click the [Cancel] button. The specified conditions are canceled and the [System Event Log] window reappears.
- To return the selected values to the default values:
 - 1 Click the [Default Setting] button. The conditions selected for all parameters are cleared and the parameters revert to their default values.

3.2.2.2 System Event Log (Detail) window

The [System Event Log (Detail)] window displays detailed information on an event displayed in the [System Event Log] window.

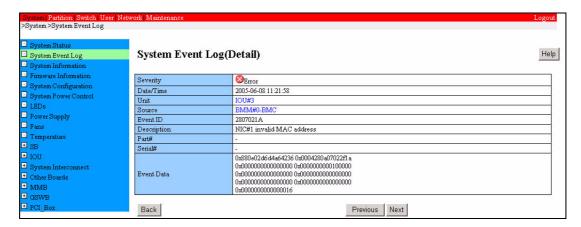


Figure 3.4 [System Event Log wdd (Detail)] window

Table 3.8 Displayed items in the [System Event Log (Detail)] window

Item	Description
Severity	Severity of the event or error:
	• Error: SerIO_Units problem such as a hardware failure
	• Warning: Event that is not serIO_Units but will possibly
	develop into a problem
	Info: Normal event such as partition power-on
Date/Time	Local date and time at which the event or error occurred.
	Format: yyyy-MM-dd HH:mm:ss
Unit	Unit with the sensor that detected the event or error. For example,
	"SB#0" is displayed for an error that occurred in CPU#A0 of
	SB#0.
	Clicking the displayed unit name displays the corresponding unit
	information window (whose information includes the part number
	and serial number of the unit).
Source	Name of the sensor that detected the event or error.
	Clicking a displayed sensor name displays the corresponding
	sensor status window or the unit information window of the unit
	containing the sensor.
Event ID	ID (eight-digit hexadecimal number) that identifies the event.
	For details on ID assignment, see the PRIMEQUEST 480/440
	Reference Manual: Messages/Logs. (C122-E004EN)

3-16 C122-E003-02EN

Item	Description
Description	Description of the event or error.
	If the event involves board insertion or removal, the part number
	and serial number of the board are displayed.
Part Number	Part number of the source or unit where the event occurred
Serial Number	Serial number of the source or unit where the event occurred
Event Data	Event data in hexadecimal notation

Table 3.9 Buttons in the [System Event Log (Detail)] window

Button	Description
Back	Redisplays the [System Event Log] window.
Prev	Displays detailed information on the prevIO_Units event
	according to the display order in the [System Event Log] window.
Next	Displays detailed information on the next event according to the
	display order in the [System Event Log] window.

 $[System] \rightarrow [System Event Log] \rightarrow [Detail]$ on each log

(2) GUI operation

- Returning to the [System Event Log] window
 - Click the [Back] button.The [System Event Log] window is displayed again.
- Displaying detailed information on the prevIO_Units event
 - 1 Click the [Prev] button. The window displays detailed information on the prevIO_Units event according to the display order in the [System Event Log] window.
- · Displaying detailed information on the next event
 - 1 Click the [Next] button. The window displays detailed information on the next event according to the display order in the [System Event Log] window.

3.2.3 System Information window

The [System Information] window displays information about the PRIMEQUEST-series machine, such as the system name, product name.

The PRIMEQUEST-series machine (cabinet) name and the asset tag (asset management number) can be specified from this window.

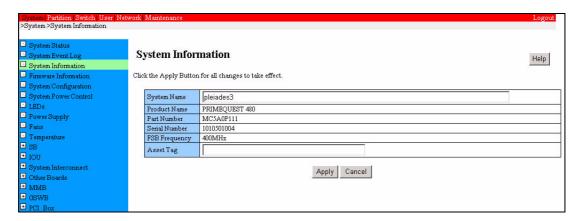


Figure 3.5 [System Information] window

Table 3.10 Displayed and setting items in the [System Information] window

Item	Description
System Name	System name.
	A user with the Admin privilege can change the system name to a
	name consisting of up to 64 characters. This system name is also
	used as an SNMP system name.
	You can use the following characters for system names: 0-9, a-z,
	A-Z, - (hyphen), _ (underscore), and one-byte space.
	However, the first character must be one of a-z and A-Z.
	The default name is <primequest_brand_name +<="" td=""></primequest_brand_name>
	serial_number>.
Product Name	Product name
Part Number	Part number
Serial Number	Serial number
FSB Frequency	Frequency.
Asset Tag	Asset management information (Asset Tag).
	A user with Administrator privilege can change asset management
	information. Up to 32 byte characters can be entered.

3-18 C122-E003-02EN

Table 3.11 Buttons in the [System Information] window

Button	Description
Apply	Sets the values entered in [System Name] and [Asset Tag].
Cancel	Reverts to the original settings in [System Name] and [Asset Tag].

 $[System] \rightarrow [System Information]$

(2) GUI operation

1 Change the values in [System Name] and [Asset Tag], and click the [Apply] button.

The entered values are then set.

3.2.4 Firmware Information window

The [Firmware Information] window displays version information on firmware running on the system.

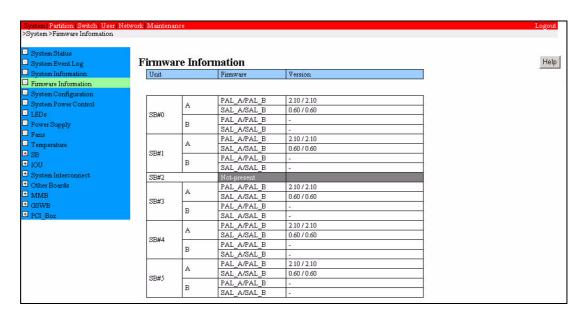


Figure 3.6 [Firmware Information] window

Table 3.12 Displayed items in the [Firmware Information] window

Item	Description
Unit	Units with installed firmware:
	• SB#0 to SB#7
	• IO_Unit#0 BMM#0/BMM#1 to IO_Unit#7 BMM#0/BMM#1
	MMB#0 and MMB#1
	GSWB#0 and GSWB#1
Firmware	Firmware type
Version	Firmware version.
	"-" is displayed for an unknown version.

(1) Menu operation

[System] → [Firmware Information]

(2) GUI operation

None

3-20 C122-E003-02EN

3.2.5 System Setup window

The [System Setup] window allows you to specify PRIMEQUEST Power Feed mode settings and Power Restore actions.

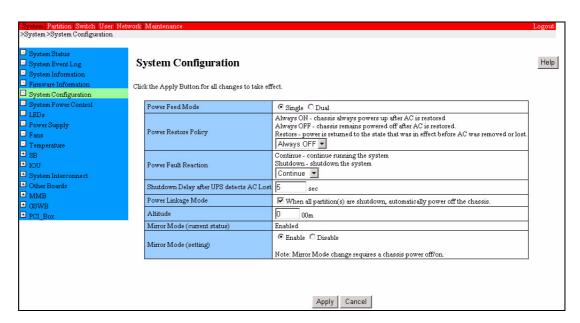


Figure 3.7 System Setup window

Table 3.13 Displayed and setting items in the [System Configuration] window

Item	Description
Power Feed Mode	The user can set either single power feed mode or dual power feed
	mode for the power supply to the PRIMEQUEST-series machine:
	Single: Single power feed mode
	Dual: Dual power feed mode
	The default setting is [Single].
Power Restoration	The user can specify the action taken for power recovery in the
Policy	event of a power failure, and this setting is displayed:
	Always off: Keeps power off after power recovery.
	• Always on: Turns power on after power recovery regardless of
	the status at the time of the power failure.
	• Restore: Restores the status at the time of the power failure.
	That is, if power was on at the time of the power failure, power
	is turned on, and if power was off, power is kept off.
	The default setting is [Restore].

Item	Description
Power Fault Reaction	The user can specify the action taken in the event of lost
	redundancy, and this setting is displayed:
	• continue: Keeps servers operating continuously when
	redundancy is lost.
	• shutdown: Shuts down the servers when redundancy is lost.
	The default value is [continue].
Shutdown Delay after	The user can specify the grace period from UPS detection of a
UPS detected AC	power failure until the start of an OS shutdown.
Failure	If power recovery is completed within this time, the OS shutdown
	does not start.
	The setting range is 0 to 9999 seconds.
	The default setting is 5 seconds.
Power Linkage Mode	If this check box is checked, when all partitions are shut down, the
	power to the cabinet and the GSWB is turned off at the same time.
	If the check box is unchecked, the cabinet and the GSWB remain
	on when all partitions are shut down. By default, the check box is
	checked (the cabinet and the GSWB are switched off in
	synchronization with the shutdown of all partitions).
Altitude	The user can specify the altitude of the PRIMEQUEST-series
	machine installation location.
	• Altitude <= 1500 m
	• 1500 m < Altitude <= 2000 m
	• 2000 m < Altitude <= 2500 m
	• 2500 m < Altitude
	The default setting is Altitude <= 1500 meters.
Mirror Mode (current	Indicates the mirror mode status that is currently in effect on the
status)	system.
	• Enabled: The system is in mirror mode.
	• Disabled: The system is not in mirror mode.
	The default status is [Enabled].
Mirror Mode (setting)	The user can specify whether to enable or disable mirror mode for
	the system.
	• Enable (Mirror Mode)
	Disable (Non Mirror Mode)
	Additionally, the user must power off all partitions to validate a
	change to this setting. The change is not reflected in the system
	until the power-off operation.
	Furthermore, [System Mirror (Extended Mirror Mode)] must be
	specified for the mirror mode of all partitions. For details, see the
	section about the [Mode] window.

3-22 C122-E003-02EN

Table 3.14 Buttons in the [System Setup] window

Button	Description
Apply	Specify [Power Feed Mode], [Power Restore Policy], and other
	items, and click the [Apply] button to set the specified values.
Cancel	When you click the [Cancel] button, modifications or additions to
	items are not made effective, but the items are returned to their
	previous state.

 $[System] \rightarrow [System Setup]$

(2) GUI operation

- 1 Specify [Power Feed Mode], [Power Restoration Policy], and other items in this window, and click the [Apply] button.
 - Then, the specified values are made effective.
- 2 In the confirmation dialog box, specify whether to perform power-off immediately or later. Select immediate power-off to turn off the power to the cabinet immediately. Select later power-off to close the window without turning off the power.

3.2.6 System Power Control window

The [System Power Control] window enables power control of the entire PRIMEQUEST system.

Note: Be sure to use the OS shutdown function (Power Off - the chassis is powered off after all partition(s) are shutdown) to turn off power to any partition in which Windows is installed.

In an emergency, such as no response from the system, use MMB Power-Off (Force Power Off) to turn off power.

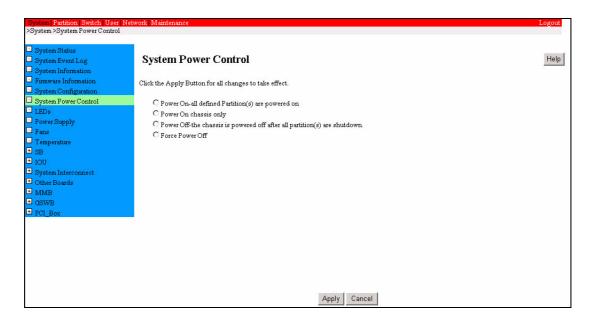


Figure 3.8 [System Power Control] window

3-24 C122-E003-02EN

Table 3.15 Displayed and setting items in the [System Power Control] window

Item	Description
Power On - all partition(s)	Power control of the PRIMEQUEST-series machine:
	Powers on all partitions. If this option is selected and
	power to only the cabinet is turned on, the partitions are
	powered on at the same time.
Power On the Chassis only	Powers on sections other than SBs and IO_Units. The
	GSWB is also powered on.
Power Off the Chassis (all	Shuts down all partitions when the cabinet is powered
partition(s) will be automatically	off. A confirmation dialog box opens before the
shutdown.	shutdown operation.
Force Power Off	Powers off partitions without shutting down the OSs
	running in them. A confirmation dialog box opens
	before the power-off operation.

Table 3.16 Buttons in the [System Power Control] window

Button	Description
Apply	Select a control option by clicking a radio button, and click the
	[Apply] button. Power supply is controlled based on the selected option.
Cancel	Click the [Cancel] button to revert to the original setting for power
	supply control.

[System] → [System Power Control]

(2) GUI operation

Select a power control option by clicking a radio button and click the [Apply] button.

Power supply is controlled based on the selected option.

Remark: If [Power Off] or [Force Power Off] is selected, a confirmation dialog box opens.

3.2.7 LEDs window

The [LEDs] window displays LEDs statuses in the system.

For the LED statuses and their meaning, see the *PRIMEQUEST System Design Guide* (C122-B001-01EN).

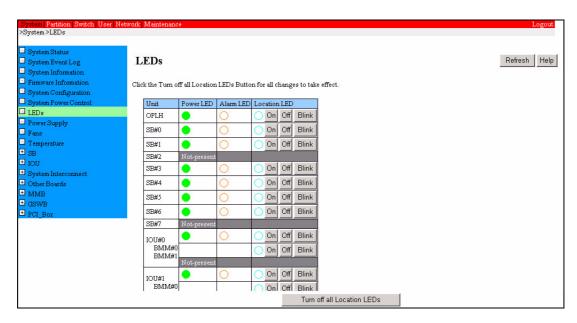


Figure 3.9 [LEDs] window

Table 3.17 Displayed and setting items in the [LEDs] window

Item	Description
Unit	Unit name.
Power LED	Power status
Alarm LED	Indication of whether the unit operating normally or abnormally
Location LED	Used to indicate the location or status of the unit corresponding to
	the LED

Table 3.18 Button in the [LEDs] window

Button	Description
Turn off all Location	Click the [Turn off all Location LEDs] button to turn off all
LEDs	location LEDs of the system.

3-26 C122-E003-02EN

[&]quot;Not present" is displayed for an uninstalled device on a line that is grayed out.

 $[System] \rightarrow [LEDs]$

(2) GUI operation

Click the [Turn off all Location LEDs] button.
 All location LEDs in the system are turned off.

3.2.8 Power Supply window

The [Power Supply] window displays power supply unit statuses in the PRIMEQUEST-series machine.

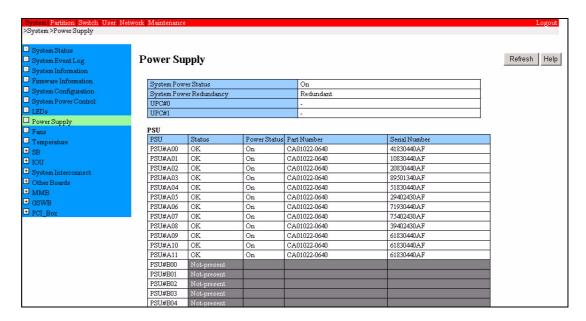


Figure 3.10 [Power Supply] window

Table 3.19 Displayed items in the [Power Supply] window

Item	Description
System Power Status	Power status of the PRIMEQUEST-series machine (cabinet):
	On: Powered on
	Standby: Standby mode

Item	Description
Power System	Redundancy status of power supply units:
Redundancy	Redundant: PSU redundancy is maintained.
	• [Non-redundant: FSufficient Resources]: PSU redundancy is
	lost, but there are enough PSUs to continue system operation.
	• [Non-redundant: Insufficient Resources]: PSU redundancy is
	lost, and there are not enough PSUs to continue system
	operation.
UPC#x	UPS status detected by the UPC interface:
	• AC Lost: Power is off.
	Battery Lost: The battery has been depleted.
	Failed: The system has failed.
	-: Normal status or the UPS is not connected.
PSU	
PSU	PSU number
Status	PSU status:
	OK: Operating normally
	37

PSU number
PSU status:
OK: Operating normally
Not present: Not installed
Failed: Failure
Predictive Fail: Expecting a failure.
A/C Lost: Power failure
Indication of whether PSU power is On or Off
PSU part number
PSU serial number

 $[System] \rightarrow [Power Supply]$

(2) GUI operation

None

3-28 C122-E003-02EN

3.2.9 Fans window

The [Fans] window displays fan statuses in the PRIMEQUEST-series machine, and the fan statuses can be cleared using this window.

The temperatures at the air intake and exhaust temperature sensors and at the CPU temperature sensor are displayed.

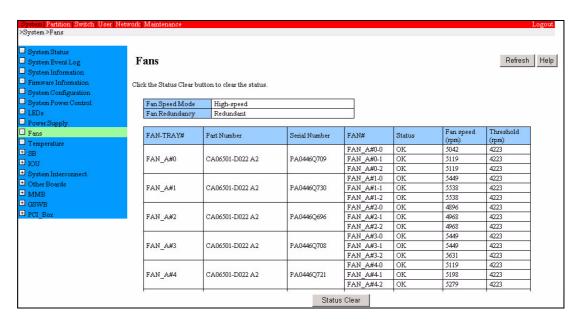


Figure 3.11 [Fans] window

Table 3.20 Displayed items in the [Fans] window

Item	Description
Fan Speed Mode	Fan speed mode:
	• Normal: Normal rotational speed
	• High-speed: High rotational speed (The fan entered high-speed
	mode because of an abnormal temperature or lost redundancy.)
Fan Redundancy	Fan redundancy status:
	• Redundant: Fan redundancy is maintained.
	• Non-redundant: Sufficient Resource Fan redundancy is lost, but
	there are enough fans to continue system operation.
	• Non-redundant:Insufficient Resources: Fan redundancy is lost,
	and there are not enough fans to continue system operation.
FAN-TRAY#	Fan tray number
Part Number	Fan tray part number
Serial Number	Fan tray serial number
FAN#	Fan number

Item	Description
Status	Fan status:
	OK: Operating normally
	Not present: Not installed
	Failed: Fan failure
Fan Speed(rpm)	Fan speed (rpm).
Threshold(rpm)	Lower limit of the fan speed (Any speed lower than this setting is
	abnormal.)

Table 3.21 Button in the [Fans] window

Button	Description
Status Clear	Click the [Status Clear] button to display the [Fans Status Clear]
	window. This window enables clearing of the fan statuses.

 $[System] \rightarrow [Fans]$

(2) GUI operation

- Click the [Status Clear] button.
 The [Fans Status Clear] window is displayed.
- 2 Follow the clearing process in the [Fans Status Clear] window. The fan statuses are cleared.

3.2.9.1 Fans Status Clear window

Once an abnormality is detected in a fan, the fan remains in the abnormal status until the fan is replaced or the abnormal status is cleared.

The abnormal status of a fan can be cleared using the [Fans Status Clear] window.

Note: After the abnormal status of a fan is cleared, if an abnormal fan speed is detected in the fan, the fan is placed in the [Failed] status again. Clearing the status of a fan with an abnormal fan speed does not change its status from [Failed].

3-30 C122-E003-02EN

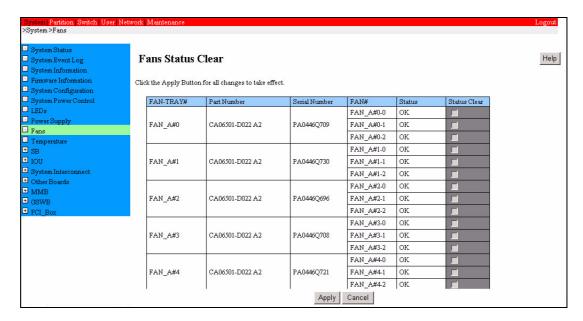


Figure 3.12 [Fans Status Clear] window

Normal fans are grayed out and cannot be selected.

Table 3.22 Displayed and setting items in the [Fans Status Clear] window

Item	Description
FAN-TRAY#	Fan tray number
Part Number	Fan tray part number
Serial Number	Fan tray serial number
FAN#	Fan number
Status	Fan status:
	OK: Operating normally
	Not present: Not installed
	Failed: Fan failure
Status Clear	To clear the status of a fan, select it.

Table 3.23 Buttons in the [Fans Status Clear] window

Button	Description
Apply	To clear the status of a fan, select the fan, and click the [Apply]
	button. The abnormal status of the selected fan is then cleared.
Cancel	Click the [Cancel] button to not change information and not clear
	the abnormal status of a fan.

 $[System] \rightarrow [Fans] \rightarrow [Status Clear]$

(2) GUI operation

1 To clear the status of a fan, select the fan by checking its [Status Clear] check box, and click the [Apply] button.

The fan status is then cleared.

3.2.10 Temperature window

The [Temperature] window displays readings from temperature sensors in the PRIMEQUEST-series machine.

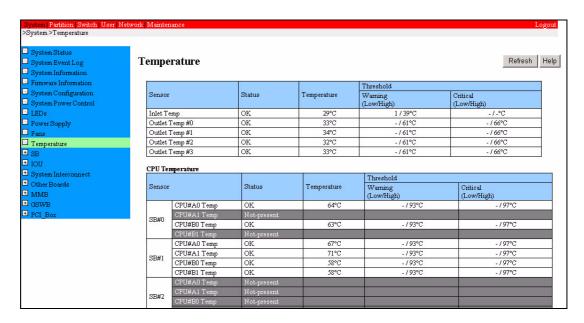


Figure 3.13 [Temperature] window

3-32 C122-E003-02EN

Table 3.24 Displayed items in the [Temperature] window

Item		Description
Sensor		Temperature sensor name.
Status		Temperature sensor status:
		OK: Operating normally
		Not present: Not installed
		Warning: Warning status
		Critical: Critical status
Temperature		Temperature sensor reading
Threshold	Warning	Lower and upper limits of the warning-status temperature stored in
	(Low/High)	a temperature sensor
	Critical	Lower and upper limits of the critical-status temperature stored in
	(Low/High)	a temperature sensor

 $[System] \rightarrow [Temperature]$

(2) GUI operation

None

3.2.11 SB menu

The [SB] menu consists of the following menus for the respective SB units:

• [SB#0] to [SB#7]

The menu for SBs that have not been mounted are not displayed.

This section describes these menus collectively as [SB#x] because they share the same window format and operating methods.

3.2.11.1 SB#x window

The [SB#x] window displays the SB#x unit status. Also, the unit settings can be changed from this window.

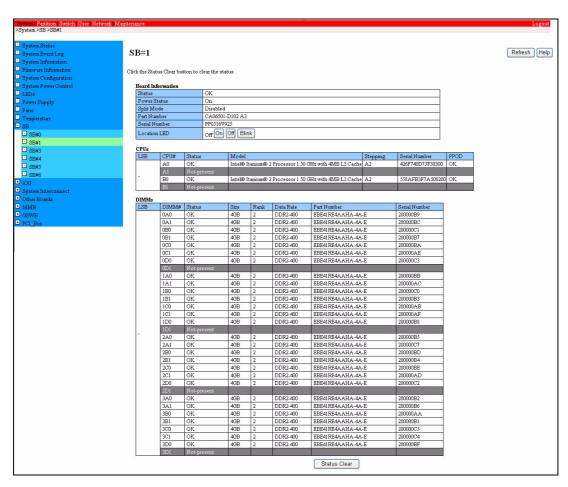


Figure 3.14 [SB#x] window (1/2)

A line with an uninstalled CPU or DIMM is grayed out.

3-34 C122-E003-02EN

If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

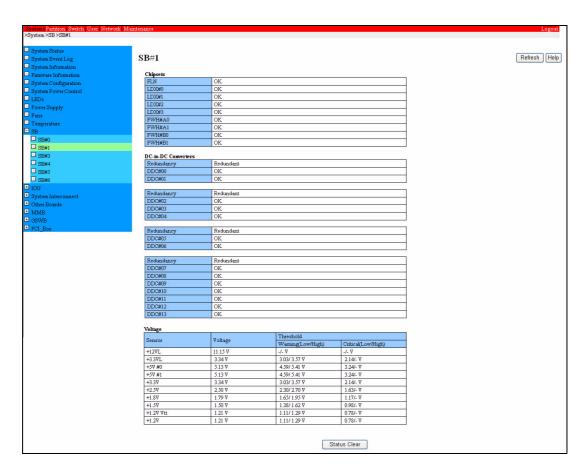


Figure 3.14 [SB#x] window (2/2)

Table 3.25 Displayed and setting items in the [SB#x] window

Item	Description
Board Information	
Status	SB status.
	• OK: Operating normally
	• Degraded: A failure has occurred on the CPU, memory, or other
	component on the SB. (The faulty component can be shut down
	to continue operation of the entire SB system.)
	• Failed: Failure
Power Status	SB power status:
	• On: Powered on
	Standby: Standby mode
Part Number	SB part number
Serial Number	SB serial number

Item	Description
Location LED	Location LED light state:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.
CPUs	
LSB	Not supported
CPU#	CPU number
Status	CPU status:
	OK: Operating normally
	Not present: Not installed
	Disabled: Normal, but not in use.
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
Model	CPU product name.
	Example: Intel Itanium 2 processor 1.5GHz with 6MB L3 cache
Stepping	CPU stepping.
Serial Number	CPU serial number
PPOD	Status of the power pod corresponding to a CPU:
	• OK
	• NG
DIMMs	
LSB	Not supported
DIMM#	DIMM number
Status	DIMM status:
	OK: Operating normally
	Not present: Not installed
	Correctable error: An error (correctable) occurred.
	Uncorrectable error: An error (uncorrectable) occurred.
	Disabled: Set to the non-operational status
	Configuration error: Configuration error
	Not supported: Not supported
	Unknown: Unknown

3-36 C122-E003-02EN

Item	Description
Size	DIMM size:
	• 512MB
	• 1GB
	• 2GB
	• 4GB
	• 8GB
	If the DIMM [Status] is "Not present," "Not-supported," or
	"Unknown," this field remains blank.
Rank	DIMM rank number (1 or 2).
	If the DIMM [Status] is "Not present," "Not-supported," or
	"Unknown," this field remains blank.
Date Rate	DIMM data rate:
	• DDR2-400
	• DDR2-533
	• DDR2-667
	If the DIMM [Status] is "Not present," "Not-supported," or
	"Unknown," this field remains blank.
Part Number	DIMM part number.
	If the DIMM [Status] is "Not present," "Not-supported," or
	"Unknown," this field remains blank.
Serial Number	DIMM serial number.
	If the DIMM [Status] is "Not present," "Not-supported," or
	"Unknown," this field remains blank.
Chipsets	1
FLN	FLN status:
	OK: Operating normally

FLN	FLN status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Error: Failed
LDX#0 to #3	LDX status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a)
	certified service engineer.)
	Error: Failed
FWH#A0 to #B1	FWH status
	OK: Operating normally
	• Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Error: Failed
DC 4- DC C	

DC-to-DC Converters

Item	Description
Redundancy	Redundancy statuses of DC-to-DC Converters 0 and 1:
	Redundant: Redundancy is maintained.
	• Non-redundant: Sufficient Resources: Redundancy is lost, but
	there are enough converters to continue system operation.
	• Non-redundant: Insufficient Resources: Redundancy is lost, and
	there are not enough converters to continue system operation.
DDC#00 to #01	Statuses of DC-to-DC Converters 0 and 1:
	OK: Operating normally
	Not present: Not installed
	Configuration error: Configuration error
	• Failed: Failure
Redundancy	Redundancy statuses of DC-to-DC Converters 02 to 04.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC Converters 00 and 01.
DDC#02 to #04	Statuses of DC-to-DC Converters 02 to 04.
	These statuses are displayed in the same way as the statuses of DC-
	to-DC Converters 00 and 01.
Redundancy	Redundancy statuses of DC-to-DC Converters 05 and 06.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC Converters 00 and 01.
DDC#05 to #06	Statuses of DC-to-DC Converters 05 and 06.
	These statuses are displayed in the same way as the statuses of DC-
	to-DC Converters 00 and 01.
Redundancy	Redundancy statuses of DC-to-DC Converters 07 to 13.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC Converters 00 and 01.
DDC#7 to #13	Statuses of DC-to-DC Converters 07 to 13.
	These statuses are displayed in the same way as the statuses of DC-
	to-DC Converters 00 and 01.
SSM	Slow-start circuit status:
	OK: Operating normally
	Failed: Failure
Voltage	
Sensor	Voltage sensor type
Voltage	Current voltage reading
Threshold Warning	Lower and upper limits of the warning-level voltage. If no limit is
(Low/High)	set, "-" is displayed.
Critical	Lower and upper limits of the critical-level voltage. If no limit is
(Low/High)	set, "-" is displayed.

3-38 C122-E003-02EN

Table 3.26 Button in the [SB#x] windor	W
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Button	Description
Status Clear	Click the [Status Clear] button to display the [SB#x Status Clear]
	window. This window enables clearing of the error status of an SB
	component whose failure was detected.
	This enables using of the component again at the next reboot.

 $[System] \rightarrow [SB] \rightarrow [SB\#x]$

(2) GUI operation

- · Clearing the error status of a component on which an error has been detected
 - Click the [Status Clear] button.
 The [SB#x Status Clear] window is displayed.
 - 2 The [SB#x Status Clear] window enables clearing of the error status of a component whose failure was detected.
 Use of this component is attempted at reboot.

3.2.11.2 SB#x Status Clear window

Once an abnormality is detected in a component, the component remains in the abnormal status until the status is cleared.

The [SB#x Status Clear] window allows you to clear the error status of a component on which an abnormality has been detected. Radio buttons are provided to ensure that you can specify whether to clear all error statuses on the SB at the same time or clear the error status of individual components.

Note: Clearing the abnormal status of a component enables its use during the next reboot. If an error is detected again, the component is placed back in the error status.

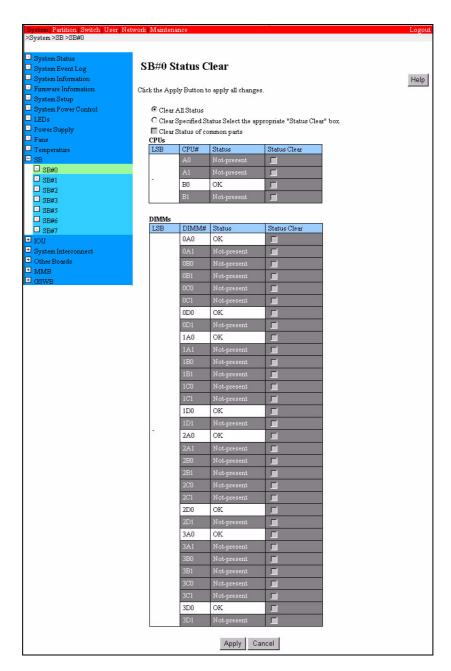


Figure 3.15 SB#x [Status Clear] window (1/2)

3-40 C122-E003-02EN

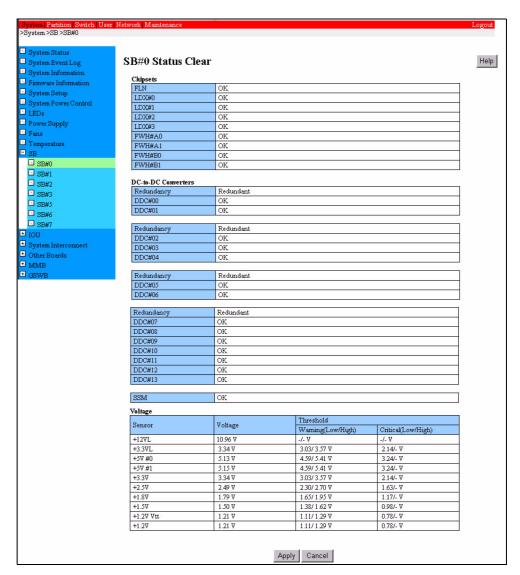


Figure 3.16 SB#x [Status Clear] window (2/2)

Table 3.27 Displayed and setting items in the [SB#x Status Clear] window

Item	Description
Clear All Status	Select this item to clear all error statuses at the same time.
Clear Specified Status	Select this item to clear the error status of each component
Select the appropriate	individually.
"Status Clear" box.	
Clear Status of common	Select [Clear Status of common parts] to clear the statuses of
parts	common parts.
CPUs	
LSB	Not supported
CPU#	CPU number

Item	Description
Status	CPU status:
	OK: Operating normally
	Not present: Not installed
	Disabled: Normal, but not in use.
	• Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Status Clear	To clear the status of a CPU, select the CPU.
DIMMs	
LSB	Not supported
DIMM#	DIMM number
Status	DIMM status:
	OK: Operating normally
	Not present: Not installed
	Uncorrectable error: An ECC error (correctable) occurred.
	Warning: An ECC error (uncorrectable) occurred.
	Disabled: Set to the non-operational status
	Configuration error: Configuration error
	Not supported: Not supported
	Unknown: Unknown
Status Clear	Select the DIMM on which you want to clear the error status.
Chipsets	
FLN	FLN status:
	OK: Operating normally
	• Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Error: Failed
LDX#0 to #3	LDX status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Error: Failed
FWH#A0 to #B1	FWH status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Error: Failed
DC-to-DC Converters	

3-42 C122-E003-02EN

Item	Description
Redundancy	Redundancy statuses of DC-to-DC converters #0 and #1:
	Redundant: Redundancy is maintained.
	• Non-redundant: Sufficient Resources: Redundancy is lost, but
	there are enough converters to continue system operation.
	• Non-redundant: Insufficient Resources: Redundancy is lost, and
	there are not enough converters to continue system operation.
DDC#00 to #01	Statuses of DC-to-DC converters #0 and #1:
	OK: Operating normally
	Not-present: Not installed
	Configuration error: Configuration error
	Failed: Failure
Redundancy	Redundancy statuses of DC-to-DC converters #02 to #04.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
DDC#02 to #04	Statuses of DC-to-DC converters #02 to #04.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
Redundancy	Redundancy statuses of DC-to-DC converters #05 to #06.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
DDC#05 to #06	Statuses of DC-to-DC converters #05 to #06.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
Redundancy	Redundancy statuses of DC-to-DC converters #07 to #13.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
DDC#07 to #13	Statuses of DC-to-DC converters #07 to #13.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC converters #00 and #01.
SSM	Slow-start circuit status:
	OK: Operating normally
	Failed: Failed
Voltage	
Sensor	Voltage sensor type
Voltage	Current voltage reading
Threshold Warning	Lower and upper limits of the warning-level voltage. If no limit is
(Low/Hig	gh) set, a hyphen (-) is displayed.
Critical	Lower and upper limit of the critical-level voltage. If no limit is
(Low/Hig	set, a hyphen (-) is displayed.

Table 3.28 Buttons in the [SB#x Status Clear] window

Button	Description
Apply	To clear the status of a component, select the component, and click
	the [Apply] button.
Cancel	Click the [Cancel] button to not change information and not clear
	the status of a component.

 $[System] \rightarrow [SB] \rightarrow [SB#x] \rightarrow [Status Clear]$

(2) GUI operation

- 1 Make a selection for component status clearing as follows:
 - Click [Clear All Status] to clear the statuses of all components.
 - To clear the statuses of components individually, click [Clear Specified Status] and click [Status Clear] on the component on which you want to clear the error status.
 - Click [Clear Status of common parts] to clear the statuses of common parts.
- 2 Click the [Apply] button.
 The statuses of the specified components are then cleared. Use of these components is attempted at reboot.

3.2.12 IO_Unit menu

The [IO Unit] menu consists of the following menus for the respective IO Units:

• [IOU#0] to [IOU#7]

The menu for IO Units that have not been mounted are not displayed.

This section describes these menus collectively as [IO_Unit#x] because they share the same window format and operating methods.

3-44 C122-E003-02EN

3.2.12.1 IO_Unit#x window

The [IOU#x] window allows you to view and set the status of the IOU#x board.

Remarks:

- 1 A line with an uninstalled IO_Unit is grayed out.
- 2 The [Status Clear] button is not displayed for a user who does not have the setting privilege.

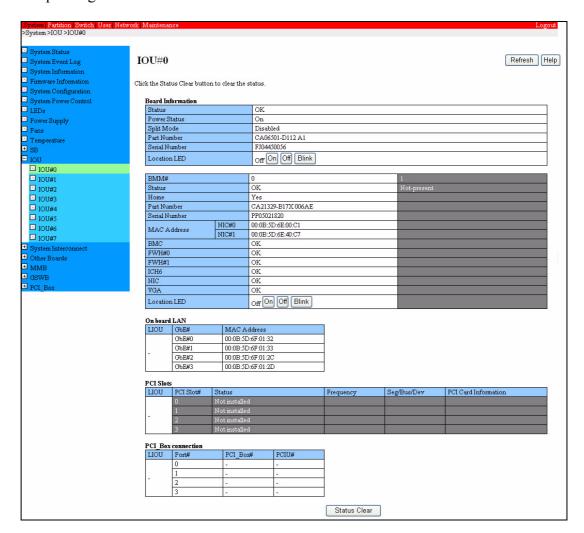


Figure 3.17 [IO_Unit#x] window (1/2)

Uninstalled IO Units are displayed on lines that are grayed out.

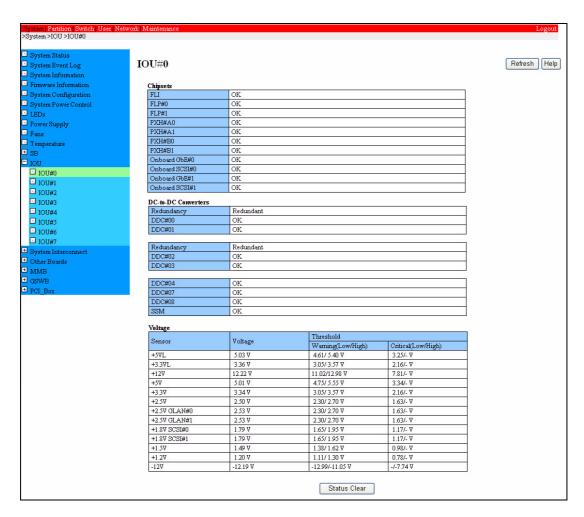


Figure 3.16 [IO_Unit#x] window (2/2)

Table 3.29 Displayed and setting items in the [IO_Unit#x] window

Item	Description
Board Information	
Status	IO_Unit status:
	OK: Operating normally
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Failed: Failure
Power Status	IO_Unit power status:
	On: Powered on
	Standby: Standby mode
Split Mode	Not supported
Part Number	IO_Unit board part number
Serial Number	IO_Unit board serial number

3-46 C122-E003-02EN

Item	Description
Location LED	Location LED status
	The three light statuses are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	Alternatively, the LED can be switched on, made to blink, or
	turned off by button operation.
BMMs	
BMM#	BMM number
Status	BMM status:
	OK: Operating normally
	Not present: Not installed
	Failed: Failure
Home	Indication of whether the BMM is set as home:
	Yes: Home
	No: Not home
Part Number	BMM part number
Serial Number	BMM serial number
MAC Address NIC#0,	MAC address of a NIC on the BMM.
NIC#1	If this address is unknown, "Unknown" is displayed.
BMC	BMC status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
FWH#0, FWH#1	Statuses of FWH#0 and FWH#1:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
ICH6	ICH6 status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
NIC	NIC status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a Fujitsu
	certified service engineer.)
	Failed: Failure

Item	Description
VGA	VGA status:
	OK: Operating normally
	• Warning: Operating but requires maintenance (Contact a Fujitsu
	certified service engineer.)
	Failed: Failure
Location LED	Location LED light status according to the selected radio button.
	The three light statuses are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.
On Board LAN	
LIOU	Not supported
GbE	GbE number
MAC Address	LAN MAC address of the GbE installed in the IO_Unit
PCI Slots	
LIOU	Not supported
PCI Slot#	PCI slot number
Power Status	PCI slot power status:
	On: Powered on
	Standby: Standby mode
Status	PCI slot status:
	OK: Operating normally
	Not present: Not installed
	Failed: Failure
	• Disabled: Normal, but not in use.
Frequency	Operating frequency:
	• PCI 33MHz
	• PCI 66MHz
	• PCI-X 100MHz
	• PCI-X 133MHz
Seg/Bus/Dev	Segment number, bus number, and device number of the PCI
	device
PCI Card Information	PCI card information (16 bytes, ASCII)
PCI_Box Connection	
LIOU	Not supported
Port#	Port number
PCI_Box#	PCI box number
PCIU#	PCIU number
Chipsets	

3-48 C122-E003-02EN

FLI	FLI status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
FLP#0 to #1	FLP status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
PXH#A0, #A1	PXH status:
PXH#B0, #B1	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a
	certified service engineer.)
	Failed: Failure
Onboard GbE#0, #1	GbE status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a Fujitsu
	certified service engineer.)
	Failed: Failure
Onboard SCSI#0, #1	SCSI status:
	OK: Operating normally
	Warning: Operating but requires maintenance (Contact a Fujitsu
	certified service engineer.)
	Failed: Failure
DC-to-DC Converters	
Redundancy	Redundancy statuses of DC-to-DC converters 00 and 01:
	Redundant: Redundancy is maintained.
	• [Non-redundant: Sufficient Resources]: Redundancy is lost, but
	there are enough converters to continue system operation.
	• [Non-redundant: Insufficient Resources]: Redundancy is lost,
	and there are not enough converters to continue system
	operation.
DDC#00 to #01	Statuses of DC-to-DC converters 00 and 01:
	OK: Operating normally
	Not present: Not installed
	Configuration error: Configuration error
D 1 1	• Failed: Failure
Redundancy	Redundancy statuses of DC-to-DC Converters 02 to 04.
	These statuses are displayed in the same way as the redundancy
	statuses of DC-to-DC Converters 00 and 01.

Description

Item

Item	Description
DDC#02 to #03	Statuses of DC-to-DC converters 02 and 03
	OK: Operating normally
	Not-present: Not installed
	Configuration error: Configuration error
	Failed: Failure
DDC#04, #07, #08	Statuses of DC-to-DC converters 04, 07, and 08
	OK: Operating normally
	Not-present: Not installed
	Configuration error: Configuration error
	Failed: Failure
SSM	Slow-start circuit status:
	OK: Operating normally
	Failed: Failure
Voltage	-
Sensor	Voltage sensor type
Voltage	Current voltage reading

Sensor		Voltage sensor type
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.

Table 3.30 Button in the [IO_Unit#x] window

Button	Description
Status Clear	Clears the error status of the IO_Unit so that it is used again at the
	next reboot.

 $[System] \rightarrow [IO_Unit] \rightarrow [IO_Unit#x]$

(2) GUI operation

1 Click the [Status Clear] button.

The error status of the IO_Unit is cleared, and a setting is made so that the IO_Unit is used again from the next reboot.

3-50 C122-E003-02EN

3.2.13 System Interconnect menu

The [System Interconnect] menu consists of the following two menus for the respective XAI units and four menus for the respective XDI units:

- [XAI#0] to [XAI#1]
- [XDI#0] to [XDI#3]

This section describes the [XAI#0] to [XAI#1] collectively as [XAI#x] because they share the same window format and operating methods. Likewise, the section describes the [XDI#0] to [XDI#3] menus collectively as [XDI#x].

3.2.13.1 XAI#x window

The [XAI#x] window allows you to view the statuses of the XAIx boards installed on a PRIMEQUEST series machine, clear the error status, and set location LEDs.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

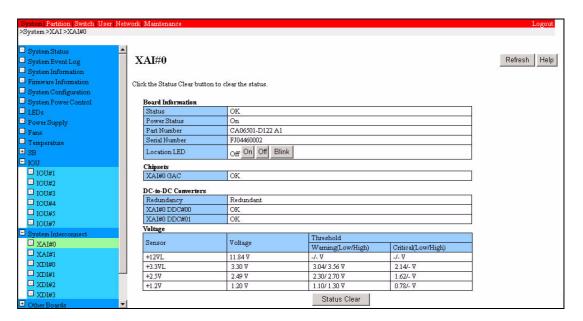


Figure 3.18 [XAI#x] window

Table 3.31 Displayed and setting items in the [XAI#x] window

Item	Description
Board Information	
Status	XAI board status:OK: Operating normallyNot present: Not installed
	 Degraded: Component failure. (The faulty component can be isolated to continue operation.) Failed: Failure
Power Status	XAI board power status:On: Powered onStandby: Standby mode
Part Number	XAI board part number
Serial Number	XAI board serial number
Location LED	Location LED status The three light statuses are as follows: On: Currently lit Off: Currently not lit Blink: Currently blinking The LED can be turned on, turned off, or set to blink by clicking a radio button.
Chipsets	itulo button.
GAC	GAC status:
	 OK: Operating normally Warning: Operating but requires maintenance (contact a certified service engineer). Failed: Failure
DC-to-DC Converters	
Redundancy	 Indicates the redundancy statuses of DC-to-DC converters 00 and 01. Redundant: The converters are redundant. [Non-redundant: Sufficient Resources]: The converters have lost redundancy, but are sufficient for system operation. [Non-redundant: Insufficient Resources]: The converters have lost redundancy and are insufficient for system operation.
DDC#00 to DDC#01	DC-to-DC converter status: OK: Operating normally Not present: Not installed Failed: Failure Configuration error: Configuration error
Voltage	
Sensor	Voltage sensor type

3-52 C122-E003-02EN

Ite	em	Description
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.

Table 3.32 Button in the [XAI#x] window

Button	Description
Status Clear	Clears the error status of the XAI and attempts to use the XAI at
	the next reboot.
	Reference: You can clear the XAI error status and specify that the
	XAI be reused at the next reboot. If an error is detected
	again during reboot, the XAI will be placed again in an
	error status.

 $[System] \rightarrow [System Interconnect] \rightarrow [XAI#x]$

(2) GUI operation

- Click the [Status Clear] button.
 A confirmation dialog box opens for confirmation to clear the error status of the XAI.
- 2 Click the [OK] button in the dialog box to clear the error status of the XAI. The error status is cleared, and use of the XAI is attempted at the next reboot. To not clear the error status of the XAI, click the [Cancel] button in the dialog box.

3.2.13.2 XDI#x window

The [XDI#x] window allows you to view the statuses of the XDIx boards installed on a PRIMEQUEST series machine, clear the error status, and set location LEDs.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

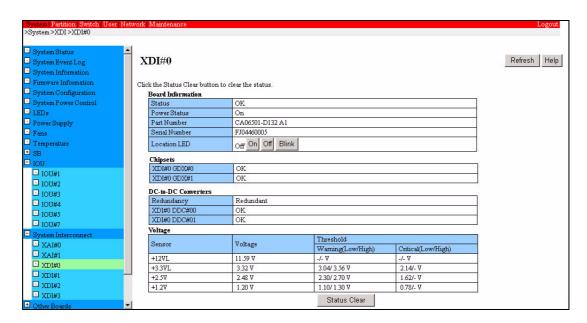


Figure 3.19 [XDI#x] window

Table 3.33 Displayed and setting items in the [XDI#x] window

Item	Description
Board Information	
Status	XDI board status:
	OK: Operating normally
	Not present: Not installed
	• Degraded: Component failure. (The faulty component can be
	isolated to continue operation.)
	Failed: Failure
Power Status	XDI board power status:
	On: Powered on
	Standby: Standby mode
Part Number	XDI board part number
Serial Number	XDI board serial number

3-54 C122-E003-02EN

Item	Description		
Location LED	Location LED status		
	The three light statuses are as follows:		
	On: Currently lit		
	Off: Currently not lit		
	Blink: Currently blinking		
	The LED can be turned on, turned off, or set to blink by clicking a		
	radio button.		
Chipsets			
GDX#0 to GDX#1	GDX status:		
	OK: Operating normally		
	• Warning: Operating but requires maintenance (contact a		
	certified service engineer).		
	Failed: Failure		
DC-to-DC Converter	DC-to-DC Converters		
DDC Redundancy	Indicates the redundancy statuses of DC-to-DC converters 00 and		
	01.		
	• Redundant: The converters are redundant.		
	• [Non-redundant: Sufficient Resources]: The converters have		
	lost redundancy, but are sufficient for system operation.		
	• [Non-redundant: Insufficient Resources]: The converters have		
	lost redundancy and are insufficient for system operation.		
DDC#00 to DDC#01	DC-to-DC converter status:		
	OK: Operating normally		
	Not present: Not installed		
	Failed: Failure		
	Configuration error: Configuration error		
Voltage			
Sensor	Voltage sensor type		
Voltage	Current voltage reading		
Threshold Warning	Lower and upper limits of the warning-level voltage. If no limit is		
(Low/H			
Critical	Lower and upper limits of the critical-level voltage. If no limit is		
(Low/H	gh) set, "-" is displayed.		

Table 3.34 Button in the [XDI#x] window

Button	Description
Status Clear	Clears the error status of the XDI and attempts to use the XDI at
	the next reboot.
	Reference: You can clear the XDI error status and specify that the
	XDI be reused at the next reboot. If an error is detected
	again during reboot, the XDI will be placed again in an
	error status.

 $[System] \rightarrow [System Interconnect] \rightarrow [XDI#x]$

(2) GUI operation

- 1 Click the [Status Clear] button.
 A confirmation dialog box opens for confirmation to clear the error status of the XDI.
- 2 Click the [OK] button in the dialog box to clear the error status of the XDI. The error status is cleared, and use of the XDI is attempted at the next reboot. To not clear the error status of the XDI, click the [Cancel] button in the dialog box.

3-56 C122-E003-02EN

3.2.14 Other Boards menu

The [Other Boards] menu consists of the following menus:

- [CPCB]
- [KVM]
- [OP-Panel]
- [FANB]
- [PDB]

This section describes the window formats and operating methods of these menus.

3.2.14.1 CPCB window

The [CPCB] window allows you to view the statuses of the CPCB boards, clear error status, and set location LEDs.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

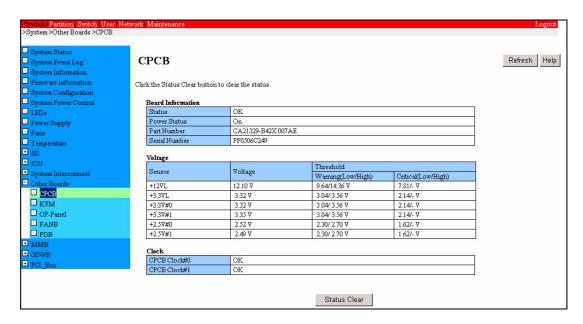


Figure 3.20 [CPCB] window

Table 3.35 Displayed and setting items in the [CPCB] window

Item		Description
Board Information		
Status		CPCB status:
		OK: Operating normally
		Not present: Not installed
		Degraded: Component failure.
		Failed: Failure
Power Statu	S	CPCB power status:
		On: Powered on
		Standby: Standby mode
Part Numbe	r	CPCB part number
Serial Numb	per	CPCB serial number
Location LE	ED	Location LED status
		The three light statuses are as follows:
		On: Currently lit
		Off: Currently not lit
		Blink: Currently blinking
		The LED can be turned on, turned off, or set to blink by clicking a
		radio button.
Voltage		
Sensor		Voltage sensor type
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
Clock		
Clock#0 to	Clock#1	System clock status:
		OK: Operating normally
		Failed: Failure

Table 3.36 Button in the [CPCB] window

Button	Description
Status Clear	Clears the error status of the CPCB and attempts to use the CPCB
	at the next reboot.
	Reference: You can clear the CPCB error status and specify that
	the CPCB be reused at the next reboot. If an error is
	detected again during reboot, the CPCB will be placed
	again in an error status.

3-58 C122-E003-02EN

 $[System] \rightarrow [Other Boards] \rightarrow [CPCB]$

(2) GUI operation

- 1 Click the [Status Clear] button.
 - A confirmation dialog box opens for confirmation to clear the error status of the CPCB.
- 2 Click the [OK] button in the dialog box to clear the error status of the CPCB. The error status is cleared, and use of the CPCB is attempted at the next reboot.

To not clear the error status of the CPCB, click the [Cancel] button in the dialog box.

3.2.14.2 KVM window

The [KVM] window allows you to view the statuses of the KVM interface unit, clear error status, and set location LEDs.

Note: Clearing the KVM abnormal status enables the use of the unit during the next reboot. If an error is detected again, the KVM is placed back in the error status.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

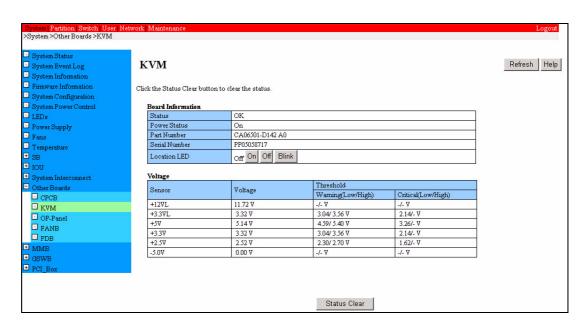


Figure 3.21 [KVM] window

Table 3.37 Displayed and setting items in the [KVM] window

Item		Description
Board Information		
Status		KVM status:
		OK: Operating normally
		Not present: Not installed
		Degraded: Component failure (The faulty component can be
		isolated to continue operation.)
		Failed: Failure
Power Statu	IS	KVM power status:
		On: Powered on
		Standby: Standby mode
Part Numbe	r	KVM part number
Serial Num	per	KVM serial number
Location LI	ED	Location LED status
		The three light statuses are as follows:
		On: Currently lit
		Off: Currently not lit
		Blink: Currently blinking
		The LED can be turned on, turned off, or set to blink by clicking a
		radio button.
Voltage		
Sensor		Voltage sensor type
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.

Table 3.38 Button in the [KVM] window

Button	Description
Status Clear	Clears the error status of the KVM and attempts to use the KVM at
	the next reboot.

 $[System] \rightarrow [Other Boards] \rightarrow [KVM]$

3-60 C122-E003-02EN

(2) GUI operation

- 1 Click the [Status Clear] button.
 - A confirmation dialog box opens for confirmation to clear the error status of the KVM.
- 2 Click the [OK] button in the dialog box to clear the error status of the KVM. The error status is cleared, and use of the KVM is attempted at the next reboot

To not clear the error status of the KVM, click the [Cancel] button in the dialog box.

3.2.14.3 OP-Panel window

The [OP-Panel] window allows you to view the statuses of the OP-Panel board, clear error status, and set location LEDs.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

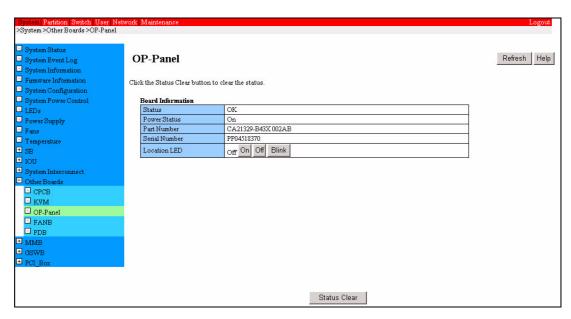


Figure 3.22 [OP-Panel] window

Table 3.39 Displayed and setting items in the [OP-Panel] window

Item	Description
Board Information	·
Status	OP-Panel board status:
	OK: Operating normally
	Not present: Not installed
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Failed: Failure
Power Status	OP-Panel board power status:
	• On: Powered on
	Standby: Standby mode
Part Number	OP-Panel board part number
Serial Number	OP-Panel board serial number
Location LED	Location LED status
	The three light statuses are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.

Table 3.40 Button in the [OP-Panel] window

Button	Description
Status Clear	Clears the error status of the OP-Panel board and attempts to use
	the OP-Panel board at the next reboot.

 $[System] \rightarrow [Other Boards] \rightarrow [OP-Panel]$

(2) GUI operation

1 Click the [Status Clear] button.

A confirmation dialog box opens for confirmation to clear the error status of the OP-Panel board.

2 Click the [OK] button in the dialog box to clear the error status of the OP-Panel board.

The error status is cleared, and use of the OP-Panel board is attempted at the next reboot.

To not clear the error status of the OP-Panel board, click the [Cancel] button in the dialog box.

3-62 C122-E003-02EN

3.2.14.4 FANB window

The [FANB] window displays the FAN BP board status.

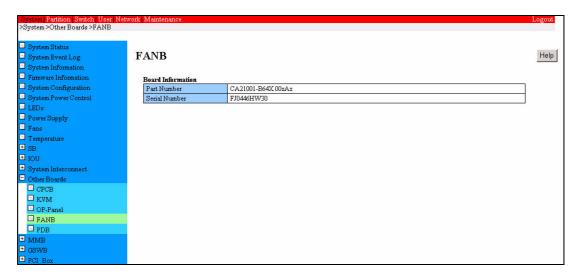


Figure 3.23 [FANB] window

Table 3.41 Displayed and setting items in the [FANB] window

Item	Description
Board Information	
Part Number	FANB part number
Serial Number	FANB serial number

(1) Menu operation

 $[System] \rightarrow [Other Boards] \rightarrow [FANB]$

(2) GUI operation

None

3.2.14.5 PDB window

The [PDB] window displays the PDB board status.

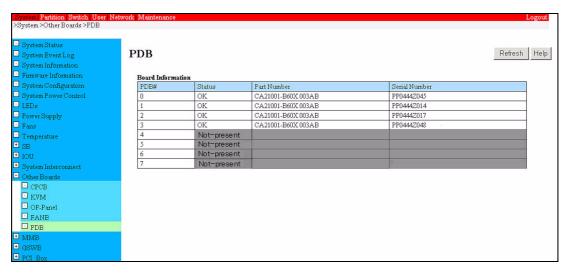


Figure 3.24 [PDB] window

Table 3.42 Displayed and setting items in the [PDB] window

Item	Description
Board Information	
Status	PDB status:
	OK: Operating normally
	Not present: Not installed
	Degraded: PDB component failure (The faulty component can
	be isolated to continue operation.)
	Failed: Failure
Part Number	PDB part number
Serial Number	PDB serial number

(1) Menu operation

 $[System] \rightarrow [Other Boards] \rightarrow [PDB]$

(2) GUI operation

None

3-64 C122-E003-02EN

3.2.15 MMB menu

The [MMB] menu consists of the following two menus for the respective MMB units:

• [MMB#0] to [MMB#1]

This section describes these menus collectively as [MMB#x] because they share the same window format and operating methods.

3.2.15.1 MMB#x window

The [MMB#x] window displays MMB information, and the location LED can be specified from this window.

The following window is displayed for the MMB master or slave.

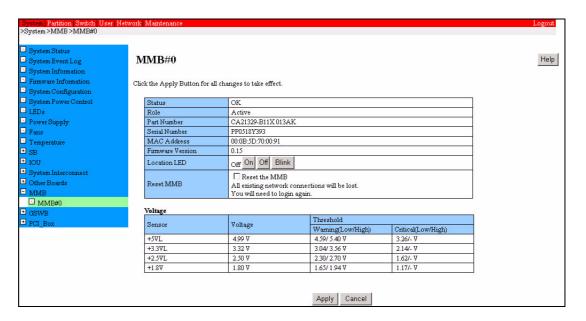


Figure 3.25 [MMB#x] window

Table 3.43 Displayed and setting items in the [MMB#x] window

Item	Description
Status	MMB status:
	OK: Operating normally
	Not present: Not installed
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Failed: Failure
Role	MMB operation status:
	Active: Operating
	Standby: Standby mode
	Disabled: Set to the non-operational status
Part Number	MMB part number
Serial Number	MMB serial number
MAC address	MAC address of the MMB management port.
Firmware Version	MMB firmware version
Location LED	Location LED status
	The three light statuses are as follows:
	• On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.
Reset MMB	Check this check box to reset the MMB.
	If this check box is checked, the [Switch Over to MMB] check box
	described below cannot be checked.
Switch Over to MMB	Check this check box to toggle between the active and standby
	modes of the MMB.
	If this check box is checked, the [Reset MMB] check box
	described above cannot be checked.
	Note: This field is displayed only if two MMBs are installed.
Enable/Disable MMB	This field can be used to enable and disable the MMB.
	Enable: Places the added MMB in standby state.
	Disable: Disables the MMB.
	When an MMB is added to the PRIMEQUEST-series machine, its
	initial status is disabled. The MMB already operating in the
	machine has the active status. To place the added MMB in the
	standby status, enable it by using this field.
Voltage	-
Sensor	Voltage sensor type
	1

3-66 C122-E003-02EN

Item		Description
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.

Table 3.44 Buttons in the [MMB#x] window

Button	Description
Apply	Specify control information, and click the [Apply] button to set the
	specified information.
Cancel	Click the [Cancel] button to revert to the original settings.

 $[System] \rightarrow [MMB] \rightarrow [MMB#x]$

(2) GUI operation

1 Specify information to change the MMB status, and click the [Apply] button. The specified information is then set to change the MMB status accordingly.

3.2.16 **GSWB** menu

The [GSWB] menu consists of the following two menus for the respective GSWB units:

• [GSWB#0] to [GSWB#1]

This section describes these menus collectively as [GSWB#x] because they share the same window format and operating methods.

3.2.16.1 GSWB#x window

The [GSWB#x] window displays the status of the GSWB#x board, and the board can be controlled and its location LED can be specified from this window.

Note: Clearing the abnormal status of a GSWB enables its use during the next reboot. If an error is detected again, the GSWB is placed back in the error status.

Remarks: If the user is granted no appropriate privilege, the [Status Clear] button is not displayed.

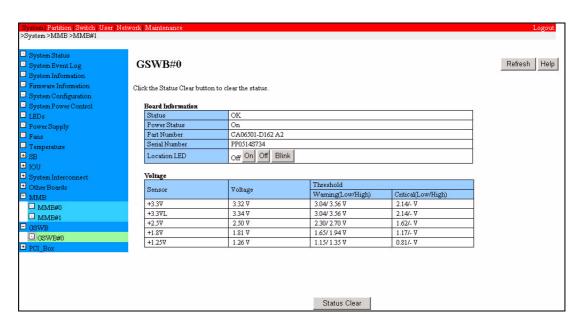


Figure 3.26 [GSWB#x] window

Table 3.45 Displayed and setting items in the [GSWB#x] window

Item	Description
Board Information	
Status	GSWB status:
	OK: Operating normally
	Not present: Not installed
	• Warning: Warning status (A problem will possibly occur.)
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Failed: Failure
Power Status	GSWB board power status:
	On: Powered on
	Standby: Standby mode
Part Number	GSWB part number
Serial Number	GSWB serial number
Location LED	Location LED status
	The three light statuses are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.
Voltage	•
Sensor	Voltage sensor type

3-68 C122-E003-02EN

Item		Description
Voltage		Current voltage reading
Threshold	Warning	Lower and upper limits of the warning-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.
	Critical	Lower and upper limits of the critical-level voltage. If no limit is
	(Low/High)	set, "-" is displayed.

Table 3.46 Button in GSWB#x window

Button	Description
Status Clear	Clears the error status of the GSWB and attempts to use the GSWB
	at the next reboot.

 $[System] \rightarrow [GSWB] \rightarrow [GSWB#x]$

(2) GUI operation

1 Click the [Status Clear] button.

A confirmation dialog box opens for confirmation to clear the error status of the GSWB.

2 Click the [OK] button in the dialog box to clear the error status of the GSWB. The error status is cleared, and use of the GSWB is attempted at the next reboot.

To not clear the error status of the GSWB, click the [Cancel] button in the dialog box.

3.2.17 PCI_Box menu

The [PCI_Box] menu consists of the following menus for the respective PCI Box units:

• [PCI_Box#0] to [PCI_Box#7]

The menu for PCI_Boxes that have not been mounted are not displayed.

This section describes these menus collectively as [PCI_Box#x] because they share the same window format and operating methods.

3.2.17.1 PCI_Box#x window

The [PCI_Box#x] window displays the status of a PCI box connected to the PRIMEQUEST-series machine.

3-70 C122-E003-02EN

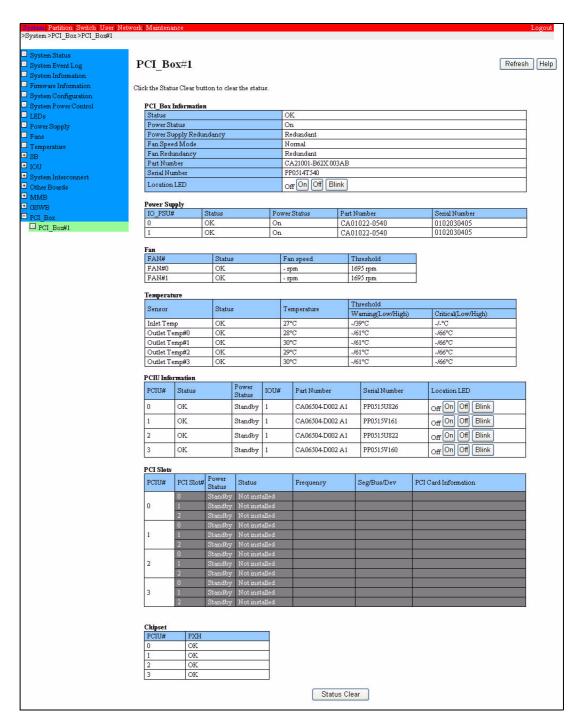


Figure 3.27 [PCI_Box#x] window (1/2)

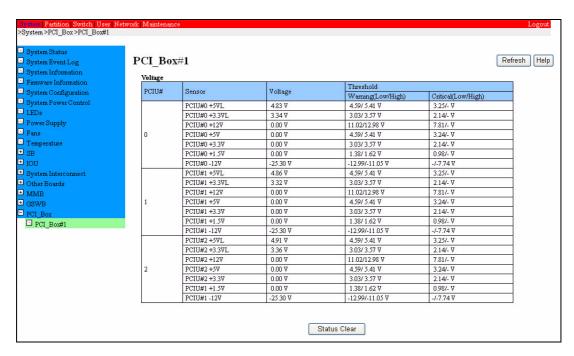


Figure 3.26 [PCI_Box#x] window (2/2)

Table 3.47 Displayed items in the [PCI_Box#x] window

Item	Description
PCI_Box Information	
Status	PCI_Box status:
	OK: Operating normally
	Not present: Not installed
	• Warning: Warning status (A problem will possibly occur.)
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Failed: Failure
Power Status	Power status:
	On: Powered on
	Standby: Standby mode
Power Supply	Redundancy status of the IO_PSU:
Redundancy	Fully redundant:
	Redundancy in the PSU configuration is maintained.
	• [Non-Redundant:
	Sufficient Resources]: The IO_PSU redundancy has been lost,
	but the fans are sufficient for system operation.
	• [Non-Redundant: Insufficient Resources]:
	The IO_PSU redundancy has been lost and the fans are
	insufficient for system operation.

3-72 C122-E003-02EN

Item	Description
Fan Speed Mode	Fan speed mode:
	• Normal
	• High
Fan Redundancy	Fan redundancy status:
	Redundant: Fan redundancy is maintained.
	• [Non-Redundant: Sufficient Resources]: Fan redundancy has
	been lost, but there are enough fans to continue system
	operation.
	• [Non-Redundant: Insufficient Resources]: Fan redundancy has
	been lost, and there are not enough fans to continue system
	operation.
Part Number	PCI_Box part number
Serial Number	PCI_Box serial number
Location LED	PCI_Box location LED display status
	The three light statuses are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking
	the corresponding button.
Power Supply	
IO_PSU#	IO_PSU identification name
Status	IO_PSU status:
	OK: Operating normally
	Not present: Not installed
	Failed: Failure
	Predictive Fail: Failure expected
	A/C Lost: Power failure
Power Status	IO_PSU power status:
	• On: Powered on
	Standby: Standby mode
Part Number	IO_PSU part number
Serial Number	IO_PSU serial number
Fan	T
FAN#	Fan identification name
Status	Status of a FAN indicated in [FAN#]:
	OK: Operating normally
	Not present: Not installed
	• Failed: Failure
Fan speed	Fan speed
Threshold	Upper limit of the fan speed

Temperature

Item	Description
Sensor	Temperature sensor identification status
Status	Temperature sensor status:
	OK: Operating normally
	Not present: Not installed
	Warning: Warning status
	Critical: Critical status
Temperature	Current temperature sensor reading
Threshold Warning	Temperature limits stored on the temperature sensor (lower and
(Low/High)	upper limits of the warning-level temperature)
Threshold Critical	Temperature limits stored on the temperature sensor (lower and
(Low/High)	upper limits of the critical-level temperature)
PCIU information	
PCIU#	PCIU number
Status	PCIU status:
	OK: Operating normally
	Not present: Not installed
	• Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	PCIU power status:
	On: Powered on
	Standby: Standby mode
IO_Unit#	IO_Unit number of an IO_Unit connected to the PCIU
Part Number	PCIU part number
Serial Number	PCIU serial number
Location LED	PCIU location LED display status
	The three light states are as follows:
	On: Currently lit
	Off: Currently not lit
	Blink: Currently blinking
	The LED can be turned on, turned off, or set to blink by clicking a
	radio button.
PCI Slots	
PCIU#	PCIU number
PCI Slot#	PCI slot number
Power Status	PCI slot power status:
	On: Powered on
	Standby: Standby mode
Status	PCI slot status:
	OK: Operating normally
	Not present: Not installed
	Failed: Failure
	Disabled: Set to the non-operational status

3-74 C122-E003-02EN

Item	Description
Frequency	PCI slot frequency:
	• PCI 33MHz
	• PCI 66MHz
	• PCI-X 100MHz
	• PCI-X 133MHz
Seg#/Bus#/Dev#	Segment number, bus number, and device number of the PCI
	device
PCI Card Information	PCI card information (16 bytes, ASCII)
Chipset	
PCIU#	PCIU number
PHX	PXH status
Voltage	
PCIU#	Indicates the PCIU number.
Sensor	Indicates the voltage sensor name.
Voltage	Indicates the current voltage value.
Threshold	Indicates the threshold value or a "-" if neither the warning (Low/
	High) nor Critical (Low/High) threshold is set.

 $[System] \rightarrow [PCI_Box] \rightarrow [PCI_Box\#x]$

(2) GUI operation

None

3.3 Partition Menu

The [Partition] menu displays partition statuses in the PRIMEQUEST-series machine, and the partitions can be specified from this menu.

3.3.1 Power Control window

The [Power Control] window displays partitions that are assigned SBs, IO_Units, HomeSB, and HomeIO_Unit and are configured for booting. This window allows you to control power on individual partitions.

Note: Be sure to use the OS shutdown function (Power Off) to turn off power to a partition in which Windows is installed.

In an emergency, such as no response from the system, use Force Power Off to forcibly turn off power.

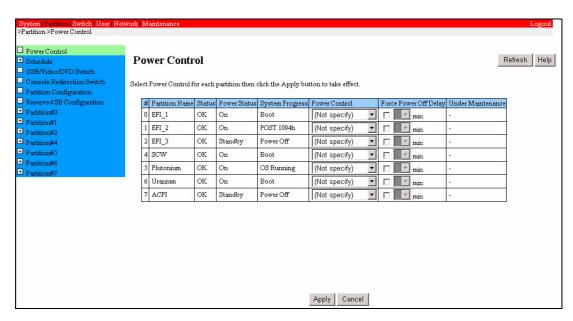


Figure 3.28 Power Control 1 window

3-76 C122-E003-02EN

If no bootable partition is available, the following window is displayed.

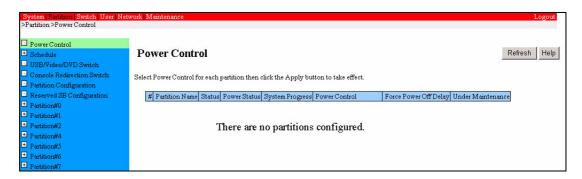


Figure 3.29 [Power Control] window (when no bootable partition is available)

This window remains displayed for a certain period after power to the cabinet is turned off. The [Power Control] column is grayed out to prevent selection in it (for power-on).

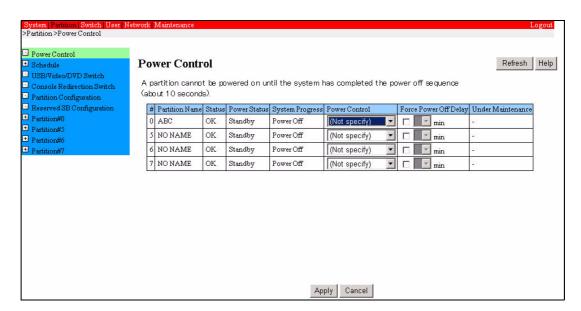


Figure 3.30 [Power Control] window (after power-off)

Table 3.48 Displayed and setting items in the [Power Control] window

Item	Description
#	Partition identification number.
	This window displays only the partitions with a registered SB or
	IO_Unit.
Partition Name	Name assigned to a partition.
	Note: To make identification easier, specify the same name as the
	host name defined in the OS.
Status	Partition status:
	OK: Operating normally
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	Partition power status:
	On: Powered on
	Standby: Standby mode
System Progress	Indicates the current status of the partition.
	• Power Off: The partition is in the power-off state.
	 Power On In Progress: The partition is executing power-on processing.
	Reset: The partition is being reset.
	 POST XXXXh enter: The process identified by POST Code =
	XXXXh has started.
	Boot: Booting is in progress.
	OS Running: The OS is running.
	OS Shutdown: The OS is shutting down.
	• Panic: The partition is in panic state.
	 Power Off In Progress: The partition is executing power-off processing.
	• Check Stop: The partition is stopped.
	 Initiate soft-shutdown: The count-down for forced power-off
	has started.

3-78 C122-E003-02EN

Item	Description
Power Control	Select a power control setting for each partition.
	The [Power On] selection is not displayed for a powered-on
	partition. Conversely, the [Power Off], [Power Cycle], [Reset],
	and [INIT] selections are not displayed for a powered-off partition.
	Power On: Powers on a partition.
	Power Off: Powers off a partition.
	Power Cycle: Forcibly powers off a partition and powers it on
	again.
	Reset: Resets a partition.
	INIT: Generates an INIT interrupt in a partition.
	Force Power Off: Forcibly powers off a partition.
	Not specified: Issues no instruction to a partition.
Force Power Off Delay	Specify whether to forcibly power off a partition in the event that
	the partition is not powered off by a shutdown instruction issued to
	its OS during the power-off sequence or power cycle.
	If [Force Power Off] is specified in [Power Control], the delay
	time can be specified (range: 1 to 9 minutes). The partition is
	powered off when the specified delay time has elapsed.
	The default setting is no forcible power-off.
Under Maintenance	Indication of whether a partition is under maintenance.
	If the partition is under maintenance, "Maintenance" is displayed.
	If it is not under maintenance, a hyphen (-) is displayed.
	Power control as described on this page is inhibited for any
	partition under maintenance.

Table 3.49 Buttons in the [Power Control] window

Button	Description
Apply	To set the values specified in the power control items of partitions,
	click the [Apply] button.
	A confirmation dialog box then opens. Click [OK] in the dialog
	box to set the values.
Cancel	Click the [Cancel] button to revert to the original settings in the
	power control items of partitions.

 $[Partition] \rightarrow [Power Control]$

(2) GUI operation

- 1 Select from the [Power Control] pulldown list and specify a power control item for each partition, and click the [Apply] button.
 - A confirmation dialog box opens.
- 2 Click the [OK] button to set the specified values.

 Additional note: If specified power control action fails, a warning dialog box about that failure opens.

Remarks: If control of the specified power supply fails, a warning dialog box opens.

3-80 C122-E003-02EN

3.3.2 Schedule menu

The [Schedule] menu provides the [Schedule Control] window and [Schedule List] window. This section describes these windows and their operations.

3.3.2.1 Schedule Control window

Information for scheduled operation of a partition can be specified in the [Schedule Control] window.

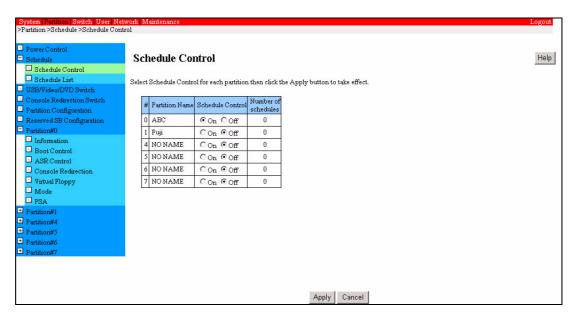


Figure 3.31 [Schedule Control] window

Table 3.50 Displayed and setting items in the [Schedule Control] window

Item	Description
#	Partition identification number.
	This window displays only the partitions with a registered SB or
	IO_Unit.
Partition Name	Name assigned to a partition.
	Note: To make identification easier, specify the same name as the
	host name defined in the OS.
Schedule Control	Specify whether to enable scheduled operation of a partition:
	On: Enables scheduled operation.
	Off: Disables scheduled operation.
Number of schedules	Number of schedules that have been set

Button	Description
Apply	Sets the specified values for scheduled operation of the specified partitions.
Cancel	Reverts to the original settings for scheduled operation of each partition.

 $[Partition] \rightarrow [Schedule] \rightarrow [Schedule Control]$

(2) GUI operation

1 Specify whether to enable scheduled operation of each partition by clicking a radio button, and click the [Apply] button.

The specified values for scheduled operation are then set.

3.3.2.2 Schedule List window

The power-on and power-off schedule for each partition can be set from the [Schedule List] window.

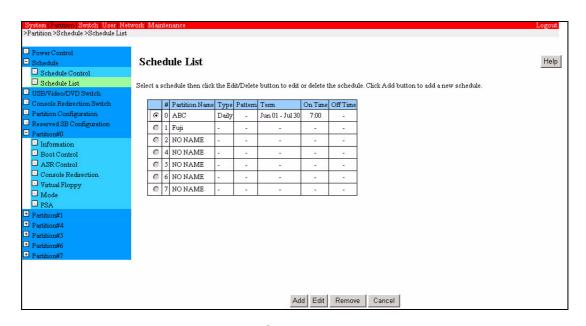


Figure 3.32 [Schedule List] window

This window displays the power-on and power-off schedule in sequence by partition number, and in each partition, the schedule is displayed in ascending order of the starting date of Term.

3-82 C122-E003-02EN

The title row in the table remains visible during scrolling.

Table 3.52 Displayed and setting items in the [Schedule List] window

Item	Description
	Select the schedule to be edited or deleted.
#	Partition identification number.
	This window displays only the partitions with a registered SB or
	IO_Unit.
Partition Name	Name assigned to a partition.
	Note: To make identification easier, specify the same name as the
	host name defined in the OS.
Туре	Schedule type specified for a partition:
	Daily: Daily operation
	Weekly: Weekly operation
	Monthly: Monthly operation
	Special: Operation on specific dates
	For details on the types, see "Add/Edit Schedule window" below.
Pattern	Schedule pattern, such as days of the week, the repetition cycle,
	and specific dates.
	For details on the patterns, see "Add/Edit Schedule window"
	below.
Term	Term as particular months or specified dates.
	For details on display of this item, see "Add/Edit Schedule
	window" below.
On Time	Power-on time for a partition.
	For details on display of this item, see "Add/Edit Schedule
	window" below.
Off Time	Power-off time for the partition.
	For details on display of this item, see "Add/Edit Schedule
	window" below.

Table 3.53 Buttons in the [Schedule List] window

Button	Description
Add	Click the [Add] button to display the [Add/Edit Schedule] window.
	A new schedule can be added from this window.
	For details, see "Add/Edit Schedule window" below.
Edit	Select an existing schedule by clicking its radio button, and click
	the [Edit] button to display the [Add/Edit Schedule] window. The
	existing schedule can be changed in this window.
	For details, see "Add/Edit Schedule window" below.

Button	Description
Remove	Select a schedule by clicking its radio button, click the [Remove]
	button, and a confirmation dialog box opens. Click the [OK]
	button to delete the schedule.
Cancel	Click the [Cancel] button to not change information and to cancel
	adding, changing, or deleting of any schedule.

 $[Partition] \rightarrow [Schedule] \rightarrow [Schedule List]$

(2) GUI operation

- · Adding a new schedule
 - Click the [Add] button.
 The [Add/Edit Schedule] window is displayed.
 - 2 Add a schedule in the [Add/Edit Schedule] window.
- Changing a schedule
 - 1 Select an existing schedule by clicking its radio button, and click the [Edit] button.
 - The [Add/Edit Schedule] window is displayed.
 - 2 Edit the schedule in the [Add/Edit Schedule] window.
- · Deleting a schedule
 - 1 Select an existing schedule by clicking its radio button, and click the [Delete] button.
 - A confirmation dialog box opens.
 - 2 To delete the schedule, click the [OK] button in the dialog box. The schedule is deleted.

3-84 C122-E003-02EN

Add/Edit Schedule window

A new power-on or power-off schedule for a partition can be added and existing schedules can be changed in the [Add/Edit Schedule] window.

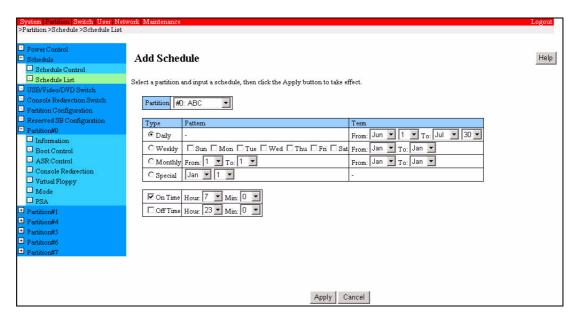


Figure 3.33 [Add/Edit Schedule] window

Table 3.54 Displayed and setting items in the [Add/Edit Schedule] window

Item	Description
Partition	To add, edit, or delete a schedule, select a partition from the pulldown list.
Type	 For a schedule selected for the partition, specify one of the following schedule types: Daily: Select [Daily] to schedule daily operation. Additionally, specify the start and end dates of this daily operation period. Weekly: Select [Weekly] to schedule weekly operation, and specify the days of the week for scheduled operation. Additionally, specify the start and end months of this weekly operation period. Monthly: Select [Monthly] to schedule monthly operation, and specify the start and end days in the month. Additionally, specify the start and end months of this monthly operation period. Special: Select [Special] for scheduled operation on a specific date, and specify the date.
Pattern	Depending on the schedule type, specify a schedule pattern, such as days of the week, the repetition cycle, or a specific date.

Item	Description
Term	Depending on the schedule type and pattern, specify the months or
	dates of this period.
On Time	Specify whether the power-on processing is performed on a
	scheduled day of operation. For power-on processing, specify the
	power-on time of the partition. The setting range for the hour is 24
	or less, and the setting range for the minutes is 00, 10, 20, 30, 40,
	or 50.
Off Time	Specify whether the power-off processing is performed on a
	scheduled day of operation. For power-off processing, specify the
	power-off time of the partition. The setting range for the hour is 24
	or less, and the setting range for the minutes is 00, 10, 20, 30, 40,
	or 50.

Table 3.55 Buttons in the [Add/Edit Schedule] window

Button	Description
Apply	Sets the specified values for the schedule items of the partition.
Cancel	Reverts to the original settings in the schedule items.

 $[Partition] \rightarrow [Schedule] \rightarrow [Schedule List] \rightarrow [Add]/[Edit]$

(2) GUI operation

- 1 For the schedule to be set, select a partition from the pulldown list.
- 2 Select a schedule type by clicking a radio button, specify values in [Pattern], [Term], [On Time], and [Off Time], and click the [Apply] button.

 The specified values for the schedule items of the partition are then set.

3-86 C122-E003-02EN

3.3.3 USB/Video/DVD Switch window

The [USB/Video/DVD Switch] window allows you to specify to which partitions you want to connect the USB port, video unit, and DVD unit from the KVM interface unit.

This window displays partitions that have an assigned SB or IO_Unit.

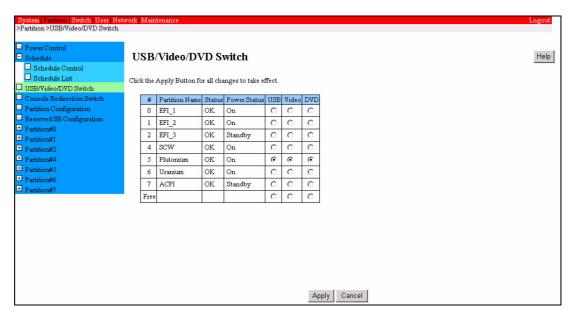


Figure 3.34 [USB/Video/DVD Switch] window

Table 3.56 Displayed and setting items in the [USB/Video/DVD Switch] window

Item	Description
#	Partition identification number.
	This window displays only the partitions with a registered SB or
	IO_Unit.
Partition Name	Name assigned to a partition.
Status	Partition status:
	OK: Operating normally
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	Partition power status:
	On: Powered on
	Standby: Standby mode

Item	Description
USB	Select the partition to be connected to the KVM USB port by
	clicking its radio button.
Video	Select the partition to be connected to the KVM video port by
	clicking its radio button.
DVD	Select the partition to be connected to an internal DVD device by
	clicking its radio button.

Table 3.57 Buttons in the [USB/Video/DVD Switch] window

Button	Description
Apply	Select a partition for a connection by clicking its radio button, and
	click the [Apply] button to establish the connection.
Cancel	Click the [Cancel] button to revert to the original status without
	establishing a connection.

[Partition] → [USB/Video/DVD Switch]

(2) GUI operation

- · Connecting to a partition
 - 1 Select a partition for a [USB], [Video], or [DVD] connection by clicking its radio button, and click the [Apply] button.

A connection to the selected partition is then established.

- Not connecting to a partition
 - 1 To not establish a [USB], [Video], or [DVD] connection, select the respective radio button in the [Free] row, and click the [Apply] button.

The selected type of connection is not established to any partition.

3-88 C122-E003-02EN

3.3.4 Console Redirection Switch window

The [Console Redirection Switch] window can be used to connect serial output from a partition to the COM port of the home IO_Unit or redirect it to the MMB.

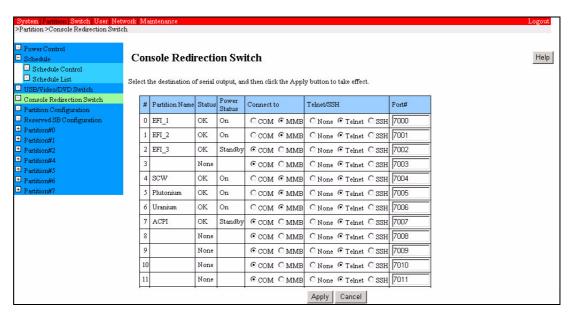


Figure 3.35 [Console Redirection Switch] window

Table 3.58 Displayed and setting items in the [Console Redirection Switch] window

Item	Description
#	Partition identification number.
Partition Name	Name assigned to a partition.
Status	Partition status:
	OK: Operating normally
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	Partition power status:
	On: Powered on
	Standby: Standby mode
Connect to	For serial output from the OS, select either a connection to the
	IO_Unit COM port or redirection to a remote client via the MMB:
	COM: Output to the COM port
	MMB: Redirected to a remote client via the MMB
	The default setting is [COM].

Item	Description
Port	If [MMB] is set in [Connect to], input for this item is possible.
	A port number of 1024 or higher can be specified for a connection
	to a remote client for [Console Redirection].
Telnet/SSH	If [MMB] is set in [Connect to], input for this item is possible.
	Either [Telnet] or [SSH] can be selected for the protocol used in a
	connection to a remote client for [Console Redirection].
	If [None] is selected, only the [Console Redirection] window of
	the Web-UI can be displayed.
	• Telnet
	• SSH
	• None

Table 3.59 Buttons in the [Console Redirection Switch] window

Button	Description
Apply	Specify a redirection method and a port number, click the [Apply]
	button, and the specified values are set.
Cancel	Click the [Cancel] button to revert to the original settings.

[Partition] → [Console Redirection Switch]

(2) GUI operation

1 Select settings in [Console Redirection Switch] and the [Telnet/SSH] by clicking radio buttons, and click the [Apply] button.

The specified switch values are then set.

Example of operation with terminal software on a remote client

For a [Console Redirection] connection in the Partition#3 window in Figure 3.34, enter the following command:

#

telnet < MMB_IP_address > 7003

3-90 C122-E003-02EN

3.3.5 Partition Configuration window

The SBs and IO_Units that compose a partition can be specified from the [Partition Configuration] window.

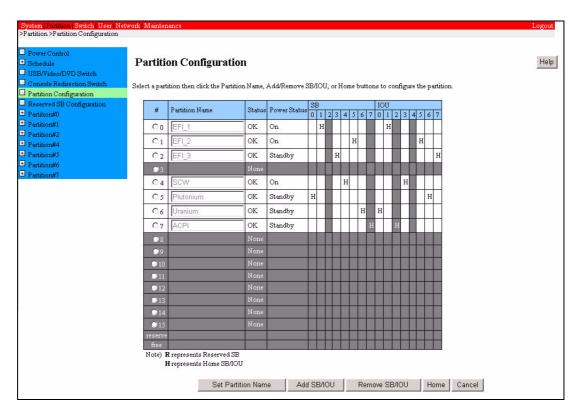


Figure 3.36 [Partition Configuration] window

The lines of partitions are grayed out if the [Status] column shows [None], meaning that the partition does not have an SB/IO_Unit, HomeSB, or HomeIO_Unit as its component. Furthermore, uninstalled SB/IO_Units are also grayed-out on their respective displayed columns.

Table 3.60 Displayed and setting items in the [Partition Configuration] window

Item	Description
#	Partition identification number.
Partition Name	Name assigned to a partition. A name consisting of up to 16
	characters can be entered.
	The default name is NULL (empty).
Status	Partition status:
	OK: Operating normally
	• Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Failed: Failure
	• None: The partition is not set up. Specifically, no SB or
	IO_Unit is assigned to it.
Power Status	Partition power status:
	• On: Powered on
	Standby: Standby mode
SB	SBs belonging to a partition.
IO_Unit	IO_Units belonging to a partition.

Table 3.61 Buttons in the [Partition Configuration] window

Button	Description
Set Partition Name	Specify a partition name in a field in [Partition Name], and click
	the [Set Partition Name] button to set the specified partition name.
Add SB/IO_Unit	Click the [Add SB/IO_Unit] button to display the [Add SB/
	IO_Unit] window. SBs and IO_Units can be added to partitions in
	this window.
Remove SB/IO_Unit	Click the [Remove SB/IO_Unit] button to display the [Remove
	SB/IO_Unit] window. SBs and IO_Units can be removed from
	partitions in this window.
Home	Click the [Home] button to display the [Home] window. An SB or
	IO_Unit can be set as the home SB or IO_Unit in a partition in this
	window.
Cancel	Click the [Cancel] button to revert to the original settings.

[Partition] → [Partition Configuration]

(2) GUI operation

· Specifying a partition name

3-92 C122-E003-02EN

1 Specify a partition name in a field in [Partition Name], and click the [Set Partition Name] button.

The specified partition name is set.

- Installing an SB or IO Unit in a partition
 - 1 Select the partition to be configured, by clicking its radio button to the left of the partition name.
 - Click the [Add SB/IO_Unit] button.The [Add SB/IO_Unit to Partition] window is displayed.
 - 3 Install an SB or IO_Unit in the partition in the [Add SB/IO_Unit to Partition] window.
- Removing an SB or IO_Unit from a partition
 - 1 Select the partition to be configured, by clicking its radio button to the left of the partition name.
 - 2 Click the [Remove SB/IO_Unit] button.
 The [Remove SB/IO_Unit from Partition] window is displayed.
 - 3 Remove an SB or IO_Unit from the partition in the [Remove SB/IO_Unit from Partition] window.
- Setting an SB or IO_Unit as the home SB or IO_Unit in a partition
 - 1 Select the partition to be configured, by clicking its radio button to the left of the partition name.
 - Click the [Home] button.The [Partition Home] window is displayed.
 - 3 Set an SB or IO_Unit as the home SB or IO_Unit in the partition in the [Partition Home] window.

3.3.5.1 Add SB/IO_Unit to Partition window

A currently free SB or IO_Unit can be selected and installed in the specified partition in the [Add SB/IO Unit to Partition] window.

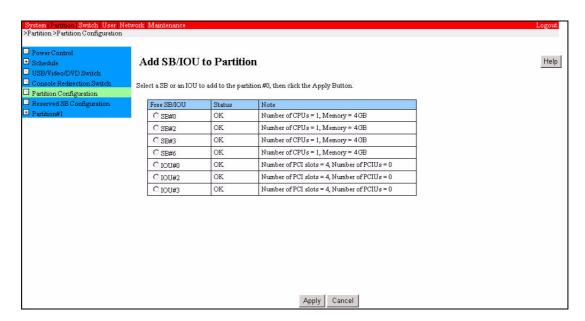


Figure 3.37 [Add SB/IO_Unit to Partition] window

Table 3.62 Displayed and setting items in the [Add SB/IO_Unit to Partition] window

Item	Description
Free SB/IO_Unit	Currently free SBs and IO_Units (not belonging to any partition)
Status	SB or IO_Unit status
Note	Number of CPUs installed on an SB or in an IO_Unit

Table 3.63 Buttons in the [Add SB/IO Unit to Partition] window

Button	Description
Apply	Click the [Apply] button and a confirmation dialog box opens. In
	the dialog box, click the [OK] button to install the selected SB or
	IO_Unit in the partition and return to the [Partition Configuration] window.
Cancel	Click the [Cancel] button to return to the [Partition Configuration] window without installing the selected SB or IO_Unit in the partition.

3-94 C122-E003-02EN

 $[Partition] \rightarrow [Partition Configuration] \rightarrow [Add SB/IO Unit]$

(2) GUI operation

- 1 Select a free SB or IO_Unit using the appropriate radio button (you can only select one free SB or IO_Unit at one time).
- Click the [Apply] button.A confirmation dialog box opens.
- 3 To include the SB or IO_Unit into the partition, click the [OK] button in the dialog box. The selected SB or IO_Unit is included in the partition and the [Partition Configuration] window reappears.

To stop the process of including the SB or IO_Unit in the partition, click the [Cancel] button in the dialog box.

3.3.5.2 Remove SB/IOU from Partition window

The [Remove SB/IOU from Partition] window allows you to select an SB or IO_Unit from a specified partition and remove it.

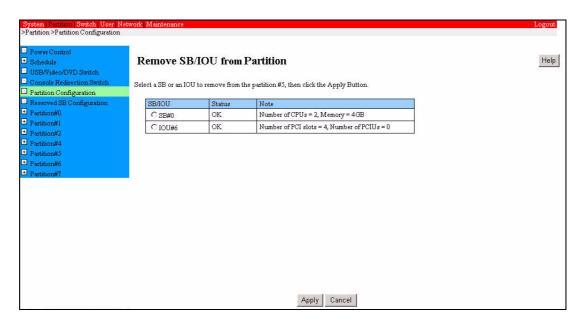


Figure 3.38 [Remove SB/IOU from Partition] window

Table 3.64 Displayed and setting items in the [Remove SB/IOU from Partition] window

Item	Description
SB/IO_Unit	Indicates an SB/IO _Unit that belongs to the partition.
Status	Indicates the status of the SB/IO_Unit.
Note	Indicates the following information:
	Number of CPUs contained in the SB
	Amount of memory installed on the SB
	Number of PCI slots on the IO_Unit
	Number of PCI units connected to the IO_Unit

Table 3.65 Buttons in the [Remove SB/IO_Unit from Partition] window

Button	Description
Apply	Click the [Apply] button and a confirmation dialog box opens.
	Click the [OK] button in the dialog box to remove the selected SB
	or IO_Unit from the partition and return to the [Partition
	Configuration] window.
Cancel	Click the [Cancel] button to return to the [Partition Configuration]
	window without removing the selected SB or IO_Unit from the partition.
	partition.

 $[Partition] \rightarrow [Partition Configuration] \rightarrow [Remove SB/IO Unit]$

(2) GUI operation

- 1 After selecting an SB or IO_Unit, click the [Apply] button. A confirmation dialog box opens.
- 2 To continue removal processing, click the [OK] button in the dialog box. The selected SB or IO_Unit is removed form the partition, and the [Partition Configuration] window reappears.

To cancel removal, click the [Cancel] button in the dialog box.

3-96 C122-E003-02EN

3.3.5.3 Partition Home window

The [Partition Home] window allows you to select an SB or IO_Unit and specify it as the home SB or home IO Unit for the partition.

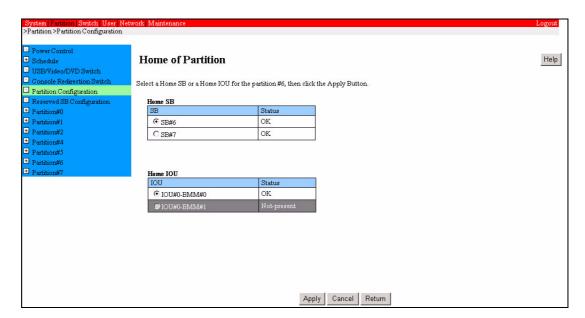


Figure 3.39 Partition Home window

Table 3.66 Displayed and setting items in the [Partition Home] window

Item	Description
Home SB	
SB	Indicates the SB that belongs to the partition.
Status	Indicates the status of the SB.
Home IO_Unit	
IO_Unit	Indicates an IO_Unit that belongs to the partition and contains an optional BMM product.
Status	Indicates the status of the IO_Unit.

Table 3.67 Buttons in the [Partition Home] window

Button	Description
Apply	Clicking the [Apply] button causes the selected SB or IO_Unit to
	be set as the home for the partition, and the [Partition
	Configuration] window reappears.
Cancel	Clicking the [Cancel] button does not cause the selected SB or
	IO_Unit to be set as the home for the partition, and the [Partition
	Configuration] window reappears.

 $[Partition] \rightarrow [Partition Configuration] \rightarrow [Home]$

(2) GUI operation

1 After selecting one SB and one IO_Unit, click the [Apply] button. The selected SB and IO_Unit are set as the home, and the [Partition Configuration] window reappears.

To stop the setting operation, click the [Cancel] button.

3.3.6 Reserved SB Configuration window

The [Reserved SB Configuration] window can be used to define a reserved in a partition by selecting a free SB or an SB already defined as a reserved in another partition.

Note: A reserved refers to an additional SB that takes over from an existing SB in the same partition in the event of a hardware failure on the existing SB, which must then be isolated.

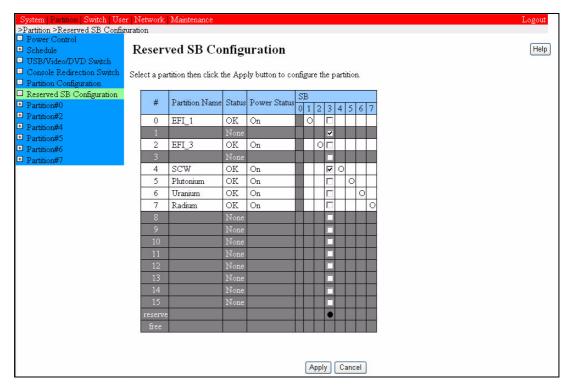


Figure 3.40 [Reserved SB Configuration] window

The boxes representing uninstalled SBs are grayed out.

3-98 C122-E003-02EN

Remarks: A reserved SB may also be assigned to multiple partitions.

Table 3.68 Displayed and setting items in the [Reserved Configuration] window

Item	Description
#	Partition number
Partition Name	Partition name
Status	Partition status:
	OK: Operating normally
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	Partition power status: [●] indicates SBS that have been allocated
	to a partition and cannot be allocated as Reserved SBs.
	On: Powered on
	Standby: Standby mode
SB0 to SB7	Reserved SBs. Select a partition to be reserved by checking its
	check box.

Table 3.69 Buttons in the [Spare Configuration] window

Button	Description
Apply	Select an SB by checking its check box, click the [Apply] button,
	and the selected SB is defined as a Reserved SB.
Cancel	Click the [Cancel] button to revert to the original status without
	defining the selected SB as a Reserved SB.

(1) Menu operation

 $[Partition] \rightarrow [Reserved SB Configuration]$

(2) GUI operation

1 Select an SB for use as a spare in a partition by checking its check box, and click the [Apply] button.

The SB is then defined as a Reserved SB.

3.3.7 Partition#x menu

The individual partitions have the following menus:

• [Partition#0] to [Partition#15]

Although the windows provided from these menus are independent for each partition, the windows all have the same screen format and operating methods. This section describes the screen format and related GUI operations for one [Partition#x] menu, but the descriptions are applicable to all partitions.

The [Partition#x] menu provides the following windows:

- [Information]
- [Boot Control]
- [ASR Control]
- [Console Redirection]
- [Mode]

This section describes these windows and their operations.

3.3.7.1 Information window

The [Information] window displays the partition status and a variety of partition information.

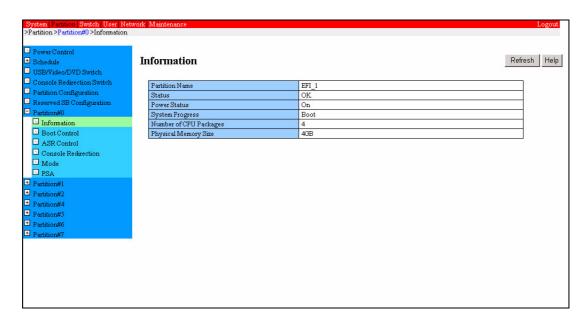


Figure 3.41 [Information] window

3-100 C122-E003-02EN

Table 3.70 Displayed items in the [Information] window

Item	Description
Partition Name	Partition name
Status	Partition status:
	OK: Operating normally
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Warning: Warning status (A problem will possibly occur.)
	Failed: Failure
Power Status	Partition power status:
	On: Powered on
	Standby: Standby mode
System Progress	Partition progress
	• Power Off:
	Power On In Progress
	• Reset:
	POST XXXXh:
	This indicates the start of "POST Code=XXXXh" processing.
	• Boot
	OS Running
	OS Shutdown
	• Panic
	Power Off In Progress
	Check Stop
Number of CPU	Number of CPU packages included in the partition.
packages	Note: This number does not include degraded CPUs.
Physical Memory Size	Size of physical memory included in the partition.
	Note: This size differs from the size of memory that can actually
	be used by the OS. The memory size does not include
	degraded DIMMs.

 $[Partition] \rightarrow [Partition #x] \rightarrow [Information]$

(2) GUI operation

None

3.3.7.2 Boot Control window

Partition boot can be controlled from the [Boot Control] window.

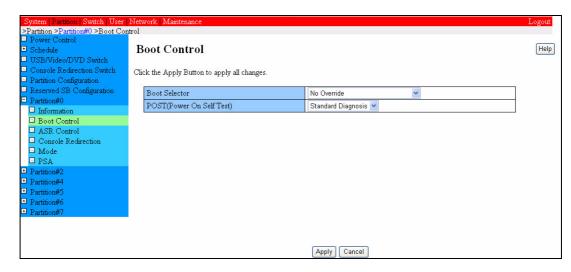


Figure 3.42 [Boot Control] window

Table 3.71 Displayed and setting items in the [Boot Control] window

Item	Description
Boot Selector	 Specify the boot device by overwriting the EFI Boot Manager settings. Select the boot device from the pulldown menu: No Overwrite: The EFI Boot Manager settings are used to boot the system. Force boot into EFI Boot Manager: EFI Boot Manager is started, and it then waits for input. EFI Boot Manager can thereby be used to select a boot device and boot the system. Force PXE: The EFI Boot Manager settings are overwritten, and PXE is forcibly executed. Force boot from DVD: The EFI Boot Manager settings are overwritten, and a forced boot of the system from the DVD is attempted. The default is [No Overwrite].
POST	Select the type of Power On Self Test (POST) from the pulldown menu: • Fast Boot: Fast boot with minimal diagnosis • Standard Diagnosis: Standard diagnosis • Full Diagnosis: Complete diagnosis with all diagnostic items The default is [Standard Diagnosis].

3-102 C122-E003-02EN

Table 3.72 Buttons in the [Boot Control] window

Button	Description
Apply	Specify a boot control method, and click the [Apply] button to set
	boot control as specified.
Cancel	Click the [Cancel] button to revert to the original status without
	setting the boot control as specified.

 $[Partition] \rightarrow [Partition \#x] \rightarrow [Boot Control]$

(2) GUI operation

1 Select a method for system boot by clicking its radio button, and click the [Apply] button to use boot control to override EFI Boot Manager settings. Boot control as specified is then set.

3.3.7.3 ASR Control window

The conditions for automatic restart of a partition can be specified in the [ASR (Automatic Server Restart) Control] window.

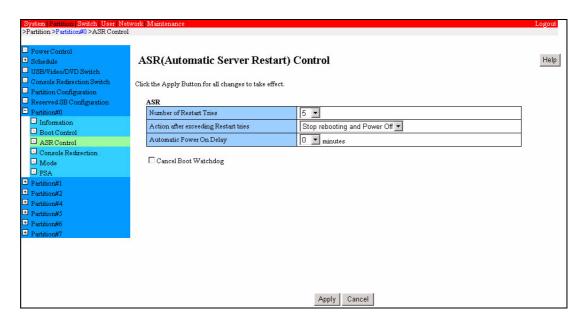


Figure 3.43 [ASR (Automatic Server Restart) Control] window

Table 3.73 Displayed and setting items in the [ASR (Automatic Server Restart) Control] window

Item	Description
Number of Restart Tries	Specify the number of OS restarts attempted following a timeout
	due to the Boot Watchdog or PSA software watchdog.
	The setting range is 0 to 10.
	The default setting is 5.
Action after exceeding	Specify the action to be taken if the repeated restart attempts due to
Restart tries	a watchdog timeout or other causes exceed the above number of
	retries.
	The action types are as follows:
	Stop rebooting and Power Off
	Stop rebooting
	Diagnostic Interrupt assert
	The default setting is [Stop rebooting and Power Off].
Automatic Power On	Specify the delay time before the power-on operation in an
Delay	automatic restart.
	The setting range is 0 to 10 minutes.
	The default setting is 0 minutes.
Cancel Boot Watchdog	Select [Cancel Boot Watchdog] to disable OS boot monitoring.
	By default, the check box is unchecked.
	Note: OS boot monitoring is a PSA function. The monitoring
	starts when the Boot Watchdog timeout time is set in the
	PSA window. If the specified Boot Watchdog timeout time
	is too short, however, a timeout may occur before the system
	starts PSA, which can stop the Boot Watchdog timer. As a
	result, repeated reboots may occur. In such cases, PSA has
	not yet started, and the PSA page that provides the Boot
	Watchdog function cannot be displayed, so the Boot
	Watchdog cannot be displayed. Provided as a measure
	against this problem, this check box disables the Boot
	Watchdog without using PSA.

Table 3.74 Buttons in the [ASR (Automatic Server Restart) Control] window

Button	Description
Apply	Click the [Apply] button to:
	• Set the specified values in items such as [Number of Restart
	Tries] [Action after exceeding Restart tries].
	Disable the Boot Watchdog if the [Cancel Boot Watchdog]
	check box is checked.
Cancel	Click the [Cancel] button to revert to the original settings.

3-104 C122-E003-02EN

 $[Partition] \rightarrow [Partition \#x] \rightarrow [ASR Control]$

(2) GUI operation

Specify values in items in the window and check the [Cancel Boot Watchdog] check box as required, and click the [Apply] button.

The specified values are then set. Furthermore, if the [Cancel Boot

3.3.7.4 Console Redirection window

The [Console Redirection] window displays console output of a partition. This console is for output only and does not accept any input.

Watchdog] check box is checked, the Boot Watchdog is disabled.

Note: The [Console Redirection] window may not be displayed normally because of the following restrictions:

- The displayed window is not the same as that output to the terminal in the following cases because the [Console Redirection] window outputs escape sequences without modification:
 - An operation is performed with the [Delete], [Backspace], [Page Up], or [Page Down] key.
 - The ls command is executed on the OS console (the beginning of the prompt is normally not displayed).
 - Colored characters are displayed.
- The [Console Redirection] window supports the ISO-8859-1 character code set. If the displayed window includes any character that is not supported, the [Console Redirection] window contents may not be normally displayed.

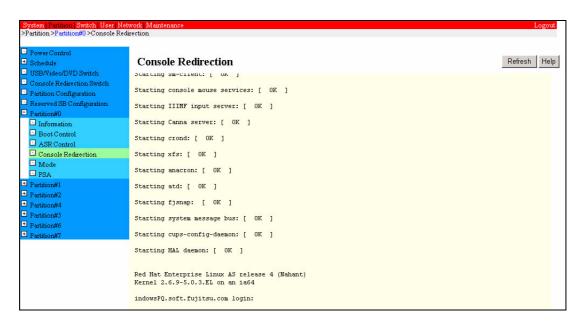


Figure 3.44 [Console Redirection-1] window

Console output is displayed with the latest line as the bottom line. Past data can be viewed by scrolling up in the window.



Figure 3.45 [Console Redirection-2] window

If the output serial port of this partition is connected to an IO_Unit COM port instead of the MMB, the above window is displayed because console output cannot be displayed.

For details, see Section 3.3.4, "Console Redirection Switch window."

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [Console Redirection]$

3-106 C122-E003-02EN

(2) GUI operation

None

3.3.7.5 Mode window

The [Mode] window allows you to set a mode for the partition. You need to reboot the partition to make the specified value effective.

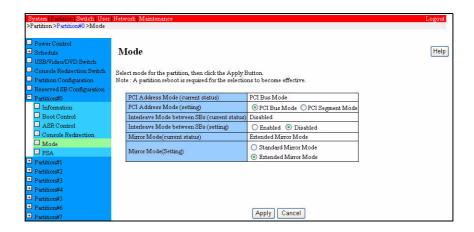


Figure 3.46 [Mode] window

You need a license to make settings on [Mirror Mode (setting)]. Without an appropriate license registered, the [Extended Mirror Mode] and [Advanced Mirror Mode] radio buttons are grayed out, meaning that they cannot be selected.

Table 3.75 Displayed and setting items in the [Mode] window

Item	Description
PCI Address	CPU address mode that is set in the partition:
Mode (current status)	• PCI Bus Mode: Defines all PCI space in the partition under segment number 0.
	• PCI Segment Mode: Defines PCI space in the partition as split into segments for each IO_Unit. If PCI segment mode is set, PCI devices under IO_Unit#0 can be seen in the space under segment number 0. Likewise, PCI devices under IO_Unit#1 can be seen in the space under segment number 1.
	 Notes: Set PCI Bus Mode for a partition whose OS is Windows Server 2003. Set PCI Segment Mode for a partition whose OS is Linux.

Item	Description
PCI Address Mode	Specify a PCI address mode for a partition.
(setting)	PCI Bus Mode
	PCI Segment Mode
	The specified mode is set when the partition is reset.
Interleave Mode	Indicates the SB-to-SB interleave mode that is currently effective.
between SBs (current	Enabled: If the configuration allows SB-to-SB memory
status)	interleave, an interleave is performed. If the DIMMs are not
	implemented to allow an SB-to-SB interleave, no interleave will
	be performed even though [Enabled] is set here.
	[Remarks]
	This setting is used when high-performance processing is
	required, such as by a research institute. Select Disable (default)
	for normal uses.
	Disabled: No SB-to-SB memory interleave is performed.
Interleave Mode	A CAUTION
between SBs (setting)	Guarantee of operation
	Do not use this field. Doing so may lead to a malfunction and
	result in data corruption or a device failure.
Mirror Mode (current	Indicates the mirror mode that is currently effective.
status)	
Mirror Mode (Setting)	Sets System Mirror.
	Be sure to select System Mirror (Extended Mirror Mode).
	A CAUTION
	Guarantee of operation
	Do not use Standard Mirror Mode/Advanced Mirror Mode. Do
	not use this field. Doing so may lead to a malfunction and result
	in data corruption or a device failure.

IMPORTANT▶ To apply the changes to settings made on this window, the partition needs to be rebooted.

3-108 C122-E003-02EN

Table 3.76 Buttons in the [Mode] window

Button	Description
Apply	When you select a mode and click the [Apply] button, a
	confirmation dialog box opens, stating the following:
	[Reboot of the partition is required in order to make set the
	selected mode effective. Please click "OK" button if you reboot
	the partition immediately; if you reboot the partition later, click
	"Cancel button.]
	Clicking the [OK] button in the confirmation dialog box causes the
	partition to be rebooted.
Cancel	Click the [Cancel] button to revert to the original settings for
	modes.

 $[Partition] \rightarrow [Partition \#x] \rightarrow [Mode]$

(2) GUI operation

- 1 Specify a mode and click the [Apply] button. A confirmation dialog box opens.
- 2 Click the [OK] button in the dialog box. The partition then reboots.

3.4 User Administration Menu

The [User Administration] menu enables user administration on the PRIMEQUESTseries machine.

3.4.1 User List window

The [User List] window displays information on registered user accounts.

This window is displayed only for users with the administrator privilege.

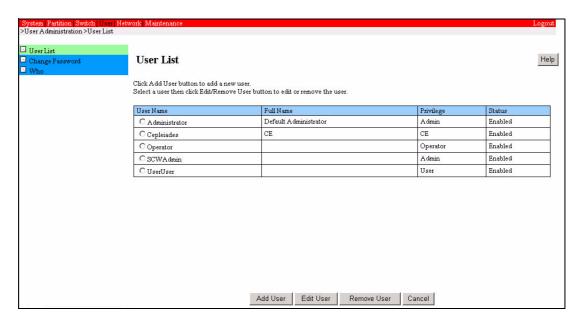


Figure 3.47 [User List] window

Users whose status is set to [Disable] are grayed out.

Table 3.77 Displayed and setting items in the [User List] window

Item	Description
User name	Indicates the user name.
Full Name	Indicates the actual name or other information associated with
	[User Name].
Privilege	User account privilege
Status	Current account status:
	• Enable: Available
	• Disabled: Not available

3-110 C122-E003-02EN

Button	Description
Add User	Click the [Add User] button to display the [Add/Edit User]
	window. A new user can be registered in this window.
Edit User	Select a user from the list of users, and click the [Edit User] button
	to display the [Add/Edit User] window.
	Management information for the user can be changed in this
	window.
Remove User	Select a user from the list of users, click the [Remove User] button,
	and a confirmation dialog box opens. Click the [OK] button to
	remove the user.
Cancel	Click the [Cancel] button to revert to the original settings without
	any modifications.

Table 3.78 Buttons in the [User List] window

[User Administration] \rightarrow [User List]

(2) GUI operation

- Registering a new user
 - Click the [Add User] button.
 The [Add/Edit User] window is displayed.
 - 2 Register a new user in the [Add/Edit User] window.
- · Changing management information for a user
 - 1 Select a user by clicking the radio button next to the user name, and click the [Edit User] button.
 - The [Add/Edit User] window is displayed.
 - 2 Edit management information for the user in the [Add/Edit User] window.
- · Removing a user
 - 1 Select a user by clicking the radio button next to the user name, and click the [Remove User] button.
 - A [Confirm Removal] dialog box opens.
 - 2 Click the [OK] button in the [Confirm Removal] dialog box to remove the user.

The user is removed.

3.4.1.1 Add/Edit User window

User management information can be changed in the [Add/Edit User] window.

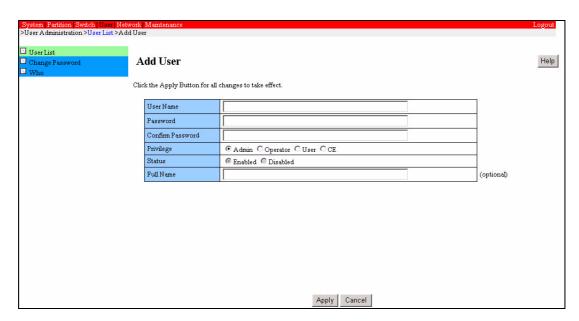


Figure 3.48 [Add/Edit User] window

Table 3.79 Displayed and setting items in the [Add/Edit User] window

Item	Description
User name	Specify a user name.
	The user name must be from 8 to 32 characters long.
	You can use the following characters for user names:
	0-9, a-z, A-Z, - (hyphen), _ (underscore), one-byte space
	The first character must be one of a-z or A-Z.
Password	Specify a password.
	The password must be from 8 to 32 characters long.
	You can use the following characters for passwords:
	0-9, a-z, A-Z, special characters: ! " # \$ % & '() = - ^ \ @ ` [] {
	<pre>}:*;+?<.>,/_ </pre>
Confirm Password	Enter the password again for confirmation.
Privilege	User account privilege
Status	Specify the current account status:
	Enabled: Available
	Disabled: Not available
Full Name	Enter a real name or other such name that is related to [User
	Name].
	The full name must not be longer than 32 characters.

3-112 C122-E003-02EN

Table 3.80 Buttons in the [Add/Edit User] window

Button	Description
Apply	Sets the specified values and redisplays the [User List] window.
Cancel	Redisplays the [User List] window without setting the specified values.

[User Administration] \rightarrow [User List] \rightarrow [Add User]/[Edit User]

(2) GUI operation

1 Specify user management information, and click the [Apply] button. Then, the specified management information is set, and the [User List] window is displayed again.

3.4.2 Change Password window

Users who are logged in can change their own passwords in the [Change Password] window.

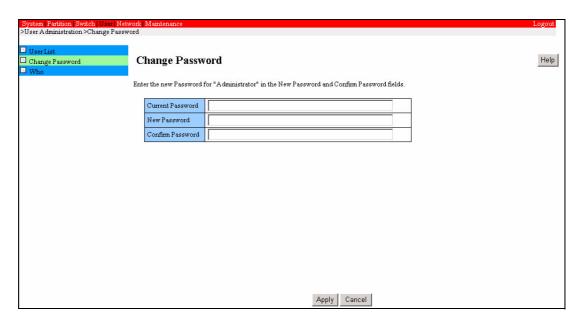


Figure 3.49 [Change Password] window

Table 3.81 Displayed and setting items in the [Change Password] window

Item	Description
Current Password	Enter the password of the user who is logged in.
New Password	Specify a new password.
	The password must be from 8 to 32 characters long.
Confirm New Password	Enter the new password again for confirmation.

Table 3.82 Buttons in the [Change Password] window

Button	Description
Apply	Specify a new password, and click the [Apply] button to register
	the password.
Cancel	Click the [Cancel] button to revert to the original setting without
	registering the new password.

[User Administration] \rightarrow [Change Password]

(2) GUI operation

Enter the current password into [Current Password], enter the new password into both [New Password] and [Confirm New Password], and click the [Apply] button.

The new password is then set.

3-114 C122-E003-02EN

3.4.3 Who window

The [Who] window displays a list of the users currently accessing the MMB Web-UI.

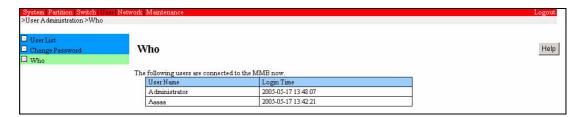


Figure 3.50 [Who] window

Table 3.83 Displayed items in the [Who] window

Item	Description
User Name	Users currently accessing the MMB Web-UI
Login Time	Login times of the accessing users

(1) Menu operation

[User Administration] \rightarrow [Who]

(2) GUI operation

None

3.5 Network Configuration Menu

The [Network Configuration] menu can be used to:

- Display and specify network interfaces
- Specify network protocols
- Configure security settings

Its windows are displayed only for users with the administrator privilege.

3.5.1 Date/Time window

The MMB date and time can be set in the [Date/Time] window.

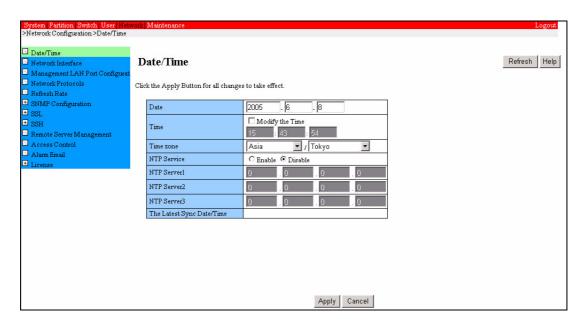


Figure 3.51 [Date/Time] window

Table 3.84 Displayed and setting items in the [Date/Time] window

Item	Description
Date	Specify a date.
Time	Specify hour:minute:second (24-hour format).
Time zone	Select a time zone from the pulldown list.

3-116 C122-E003-02EN

Item	Description
NTP	Enable or disable the NTP function.
	If [Enable] is specified, the MMB synchronizes the NTP server
	time settings on NTP1 to NTP3, which are listed below.
	Enable: Enable the NTP function.
	Disable: Disable the NTP function.
	To use the MMB as an NTP server from another client, [Enable]
	must be set for the NTP function.
	The default setting is [Disable].
NTP Server1	Specify the IP address of the primary NTP server. (This setting is
	valid only if [Enable] is set for the NTP function.)
NTP Server2	Specify the IP address of the secondary NTP server. (This setting
	is valid only if [Enable] is set for the NTP function.)
NTP Server3	Specify the IP address of the tertiary NTP server (This setting is
	valid only if [Enable] is set for the NTP function. If the setting is
	[Disable], this item is grayed out.)
The Latest Sync	Date and time of the latest time synchronization between the
Data/Time	specified NTP server and the MMB

Table 3.85 Buttons in the [Date/Time] window

Button	Description
Apply	Specify a date, time zone, etc., and click the [Apply] button to set
	the specified values.
Cancel	Click the [Cancel] button to revert to the original settings for the
	date, time zone, etc.

[Network Configuration] → [Date/Time]

(2) GUI operation

1 Specify a date, time zone, etc., and click the [Apply] button. The specified date, time zone, etc., are then set.

3.5.2 Network Interface window

The [Network Interface] window allows you to specify IP addresses and other information for MMB access. In this window, you can specify the following three types of IP addresses:

IP Address: Specify the virtual IP address to be used to access the Web-UI. If the MMB is duplicated, this virtual IP address will be taken by the active MMB.

IP Address for MMB#0: This item is displayed and can be set if MMB#0 exists on the system. Specify the physical IP address to be assigned to the MMB#0 interface. The Web-UI is also accessible from this interface. If MMB#0 does not exist on the system, this table is unselectable.

IP Address for MMB#1: This item is displayed and can be set if MMB#1 exists on the system. Specify the physical IP address to be assigned to the MMB#1 interface. The Web-UI is also accessible from this interface. If MMB#1 does not exist on the system, this table is unselectable.

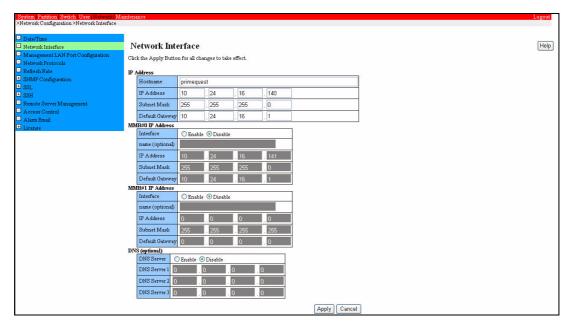


Figure 3.52 [Network Interface] window

Table 3.86 Displayed and setting items in the [Network Interface] window

Item	Description
IP Address	
Hostname	Specify a host name. The default setting is the system name.
IP Address	Specify an IP address.
Subnet mask	Specify the subnet mask.

3-118 C122-E003-02EN

Item	Description
Gateway address	Specify the gateway IP address.
IP Address for MMB#0	
Interface	Specify whether to use the MMB#0 interface:
	Enable: Uses the interface
	Disable: Does not use the interface
Interface name	Interface name
(optional)	
IP Address	Specify an IP address.
Subnet mask	Specify the subnet mask.
Gateway address	Specify the gateway IP address.
IP Address for MMB#1	
Interface	Specify whether to use the MMB#1 interface:
	Enable: Uses the interface
	Disable: Does not use the interface
Interface name	Interface name
(optional)	
IP Address	Specify an IP address.
Subnet mask	Specify the subnet mask.
Gateway address	Specify the gateway IP address.
DNS (optional)	
DNS	Specify whether to use DNS servers:
	Enable: Uses DNS servers
	Disable: Does not use DNS servers
	The default setting is [Disable].
DNS Server 1	Specify the IP address of the primary DNS server.
DNS Server 2	Specify the IP address of the secondary DNS server.
DNS Server 3	Specify the IP address of the tertiary DNS server.

Table 3.87 Buttons in the [Network Interface] window

Button	Description
Apply	Enter an IP address, subnet mask, etc., and click the [Apply] button
	to set the entered values.
	Click the [Cancel] button to revert to the original settings for the IP address, subnet mask, etc.

 $[Network\ Configuration] \rightarrow [Network\ Interface]$

(2) GUI operation

1 Enter a subnet mask, IP address, etc. for network interface information, and click the [Apply] button to set the specified values.

The specified IP address, subnet mask, etc. are then set.

3.5.3 Management LAN Port Configuration window

The [Management LAN Port Configuration] window can be used to specify the speed and duplex mode of each MMB port and set up a VLAN between the LAN port of the partition connected to the management LAN and the MMB LAN port.

Remarks: If the Speed/Duplex setting of an MMB LAN port is not "AUTO," use a cross cable for the interconnection between the MMB LAN port and the switching hub.

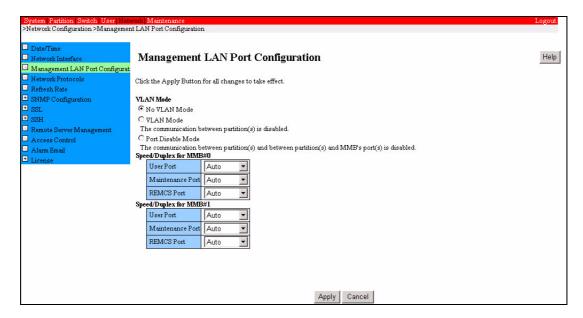


Figure 3.53 [Management LAN Port Configuration] window

3-120 C122-E003-02EN

Table 3.88 Displayed and setting items in the [Management LAN Port Configuration] window

Item	Description
VLAN Mode	Specify the VLAN mode of the MMB hub:
	No VLAN mode: Enables communication between the MMB
	port and the port of any partition.
	• VLAN mode: Blocks communication between partitions.
	• Port disable mode: Blocks communication between partitions
	and communication between the MMB port and a partition.
	The default setting is [No VLAN mode].

Speed/Duplex for MMB#0 to Speed/Duplex for MMB#1

1 1	
User port	Specify the speed and duplex mode:
	• Auto
	• 100M/Full
	• 100M/Half
	• 10M/Full
	• 10M/Half
	The default setting is [Auto].
Maintenance port	Same as above
REMCS port	Same as above

Table 3.89 Buttons in the [Management LAN Port Configuration] window

Button	Description
Apply	Specify a VLAN mode, speed and duplex mode, etc., and click the
	[Apply] button to set the specified values.
Cancel	Click the [Cancel] button to revert to the original settings for the
	VLAN mode and speed and duplex mode, etc.

(1) Menu operation

[Network Configuration] → [Management LAN Port Configuration]

(2) GUI operation

1 Specify a VLAN mode, and click the [Apply] button.

The specified VLAN mode and speed and duplex mode are then set.

Remarks: When connecting a switching hub to the MMB LAN port, use a cross cable if you want to set [Speed/Duplex] for the MMB LAN port to something other than [AUTO].

3.5.4 Network Protocols window

The network protocols of the MMB can be specified in the [Network Protocols] window.

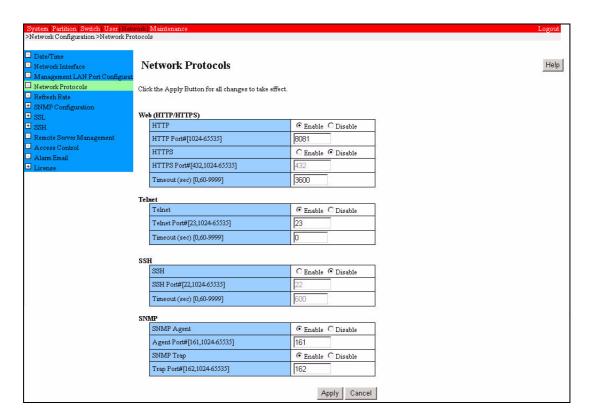


Figure 3.54 [Network Protocols] window

Table 3.90 Displayed and setting items in the [Network Protocols] window

Item	Description
Web (HTTP/HTTPS)	
HTTP	Specify whether to use HTTP:
	• Enable: Uses HTTP
	Disable: Does not use HTTP
	The default setting is [Disable].
HTTP Port#	Specify the port number used for HTTP communication.
[1024-65535]	The default setting is 8081.
HTTPS	Specify whether to use HTTPS:
	• Enable: Uses HTTPS
	Disable: Does not use HTTPS
	The default setting is [Disable].
	Note: [Enable] can be set only if a valid SSL certificate is
	registered. If [Enable] is specified when no valid SSL
	certificate is registered, an error message is displayed.

3-122 C122-E003-02EN

Item	Description
HTTPS Port#	Specify the port number used for HTTPS communication.
[432, 1024-65535]	The default setting is 432.
Timeout (sec)	Specify in seconds the amount of time that elapses without input in
	an HTTP/HTTPS connection before a timeout occurs.
	The default setting is 600 seconds.
Telnet	
Telnet	Specify whether to use Telnet:
	Enable: Uses Telnet
	Disable: Does not use Telnet
	The default setting is [Disable].
Port# [23, 1024-65535]	Specify the port number used for Telnet communication.
	The default setting is 23.
Timeout (sec)	Specify in seconds the amount of time that elapses without input in
	a Telnet connection before a timeout occurs.
	The default setting is 600 seconds.
SSH	
SSH	Specify whether to use SSH:
	Enable: Uses SSH
	Disable: Does not use SSH
	The default setting is [Disable].
Port# [22, 1024-65535]	Specify the port number used for SSH communication.
	The default setting is 22.
Timeout (sec)	Specify in seconds the amount of time that elapses in an SSH
	connection before a timeout occurs.
	The default setting is 600 seconds.
SNMP	
SNMP Agent	Specify whether to use SNMP Agent:
	Enable: Uses SNMP Agent
	Disable: Does not use SNMP Agent
	The default setting is [Disable].
Agent Port#[161,	Specify the port number used for SNMP Agent.
1024- 65535]	The setting range is 161,1024 to 65535. The default setting is 161.
SNMP Trap	Specify whether to use SNMP traps.
	Enable: Uses SNMP traps
	Disable: Does not use SNMP traps
	The default setting is [Disable].
Trap port#[162,	Specify the port number used for SNMP traps.
1024- 65535]	The setting range is 162,1024 to 65535. The default setting is 162.

Table 3.91 2.2. Buttons in the [Network Protocols] window

Button	Description
Apply	Specify a port number, timeout time, etc., and click the [Apply]
	button to set the specified values.
Cancel	Click the [Cancel] button to revert to the original settings for the
	port number, timeout time, etc.

[Network Configuration] → [Network Protocols]

(2) GUI operation

Specify a port number, timeout time, etc. for protocol information, and click the [Apply] button to set the specified values.

The specified port number, timeout time, etc. are then set.

3-124 C122-E003-02EN

3.5.5 Refresh Rate window

The [Refresh Rate] window can be used to specify automatic refresh for a Web-UI page whose contents change.

This automatic refresh mode can be set and managed for individual users.

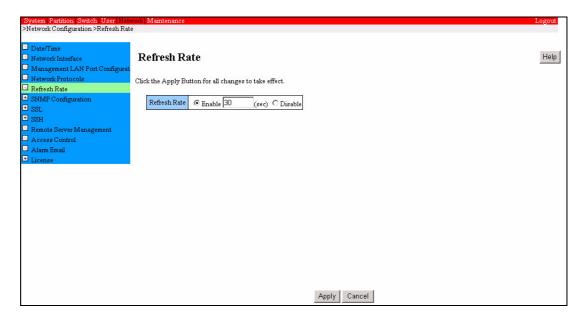


Figure 3.55 [Refresh Rate] window

Table 3.92 Displayed or setting item in the [Refresh Rate] window

Item	Description
Refresh Rate	 Specify whether to automatically refresh a page whose displayed contents change. Enable: It is possible to specify the refresh rate in seconds in a range from 5 to 999 seconds. The pages will be refreshed at the specified intervals. Disable: Automatic irregular refreshes. The default setting is [Disable].

Table 3.93 Buttons in the [Refresh Rate] window

Button	Description
Apply	Specify whether to enable automatic refresh, click the [Apply]
	button, and the specified refresh information is set.
Cancel	Click the [Cancel] button to revert to the original settings in refresh
	information.

[Network Configuration] → [Refresh Rate]

(2) GUI operation

1 Specify values in [Refresh Rate], and click the [Apply] button. The specified refresh information is then set.

3.5.6 SNMP Configuration menu

The [SNMP Configuration] menu provides the following windows:

- [SNMP Community]
- [SNMP Trap]
- [SNMPv3 Configuration]

This section describes these windows and their operations.

3.5.6.1 SNMP Community window

SNMP settings can be configured in the [SNMP Community] window.

Up to 16 communities can be set up in the MMB.

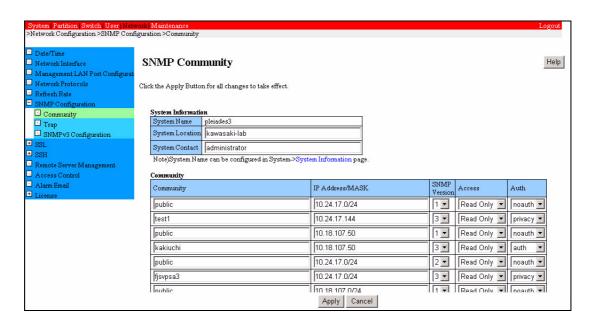


Figure 3.56 [SNMP Community] window

3-126 C122-E003-02EN

Table 3.94 Displayed and setting items in the [SNMP Community] window

Item	Description
System Information	
System Name	SNMP system name specified in the [System Information] window
System Location	Specify an SNMP system location.
System Contact	Specify an SNMP system contact.
Community	
Community	Specify an SNMP community string.
IP Address/MASK	Specify an IP address or the subnet mask for IP addresses that have
	access permission.
SNMP Version	Select an SNMP version:
	• 1
	• 2
	• 3
Access	Select an access privilege:
	Read Only: Read-only permission
	Read Write: Read/write permission
Auth	Select a security level:
	• noauth
	• auth
	• priv

Table 3.95 Buttons in the [SNMP Community] window

Button	Description
Apply	Specify community settings and an IP address that has access permission, and click the [Apply] button to set the specified values.
Cancel	Click the [Cancel] button to revert to the original settings for a community and an IP address that has access permission.

[Network Configuration] → [SNMP Configuration] → [SNMP Community]

(2) GUI operation

- · Specifying community settings and other information
 - 1 Enter values for a community, an IP address that has access permission, an SNMP version, access privilege, authentication level, etc., and click the [Apply] button.

The entered values are then set.

- Clearing community settings and other information
 - Clear community settings and the specified IP address that has access permission, and click the [Apply] button.
 Values are cleared from the settings.

3.5.6.2 SNMP Trap window

SNMP trap destinations can be specified in the [SNMP Trap] window.

Up to 16 trap destinations can be set.

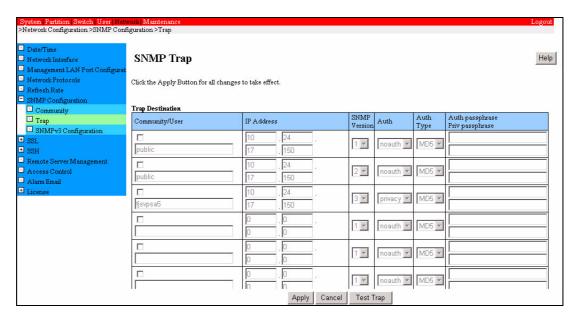


Figure 3.57 [SNMP Trap] window

Table 3.96 Displayed and setting items in the [SNMP Trap] window

Item	Description
Community/User	Specify a community or user name.
IP Address	Specify an IP address as a trap destination.
SNMP Version	Select an SNMP version:
	• 1: A version-1 SNMP trap is sent.
	• 2: A version-2 SNMP trap is sent.
	• 3: A version-3 SNMP trap is sent.

3-128 C122-E003-02EN

Item	Description
Auth	Specify the authentication level.
	noauth: Disables authentication and encryption based on a
	password (enables authentication based on a user name).
	• auth: Enables authentication based on a password but disables
	encryption based on a password.
	• priv: Enables authentication and encryption based on a
	password.
Auth Type	• md5: Selects MD5 as the hash function for password-based
	encryption.
	• sha: Selects SHA as the hash function for password-based
	encryption.
Auth passphras	Displays the packet encryption keyword used at the time of
	password-based authentication (no password-based encryption).
Priv passphrase	Displays the packet encryption keyword used at the time of
	password-based authentication and encryption.

Table 3.97 Buttons in the [SNMP Trap] window

Button	Description
Apply	Specify a community or user name, trap destination, etc., and click
	the [Apply] button to set the specified values.
Cancel	Click the [Cancel] button to revert to the original settings for the
	community or user name, trap destination, etc.
Test Trap	Click the [Test Trap] button to send a test trap to the current trap
	destination.

[Network Configuration] \rightarrow [SNMP Configuration] \rightarrow [SNMP Trap]

(2) GUI operation

- Specifying SNMP trap information
 - 1 Enter a community or user name, trap destination IP address, SNMP version, and authentication level, and click the [Apply] button.

The entered values are then set.

- · Sending a test trap
 - Click the [Test Trap] button.
 Values are cleared from the settings.
 A test trap is sent.

3.5.6.3 SNMP v3 Configuration window

An engine ID unique to SNMP v3 as well as user information can be specified in the [SNMP v3 Configuration] window.

Up to 16 SNMP v3 users can be registered. Registered users are listed in this window.

Note: If the engine ID or IP address is changed, setup for users who have been registered for SNMP v3 access must be completed again, starting from the beginning. The SNMP daemon must be restarted to validate registered users. Therefore, when the [Apply] button in the window is clicked, the SNMP service stops temporarily.

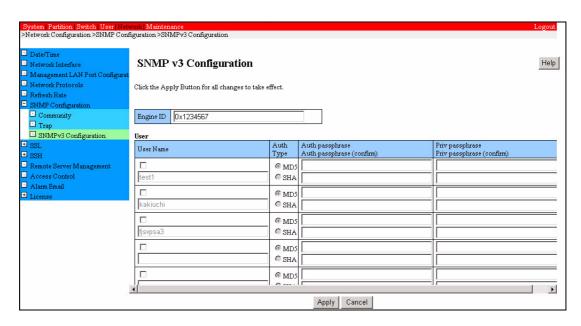


Figure 3.58 [SNMP v3 Configuration] window

Table 3.98 Displayed and setting items in the [SNMP v3 Configuration] window

Item	Description
Engine ID	Specify an engine ID.
User	
User Name	To register a user, select the check box of the user.
Auth Type	Select an authentication type:
	• MD5: Uses MD5 as a hash function for password encryption
	• SHA: Uses SHA as a hash function for password encryption
authpassphrase	Keyword used for packet encryption if password-based
	authentication (no encryption) is enabled

3-130 C122-E003-02EN

Item	Description
privpassphrase	Keyword used for packet encryption if password-based
	authentication and encryption is enabled

Table 3.99 Buttons in the [SNMP v3 Configuration] window

Button	Description
Apply	Select a user, and click the [Apply] button to restart the SNMP
	daemon to reflect the user's changes.
Cancel	Click the [Cancel] button to not change information.

[Network Configuration] → [SNMP Configuration] → [SNMPv3 Configuration]

(2) GUI operation

- Reflecting a selected user's settings
 - 1 Check the check box of a user, enter necessary information, and click the [Apply] button.

The selected user's settings are then reflected. The SNMP daemon is restarted in this procedure.

· Disabling a selected user

1 To disable a user's access, check the check box of the user, enter nothing for the user name, and click the [Apply] button.

The selected user's access is then disabled.

3.5.7 SSL menu

The [SSL] menu provides the following windows:

- [Create CSR]
- [Export Key/CSR]
- [Import Security Certificate]
- [Create Selfsigned Certificate]

This section describes these windows and their operations.

3.5.7.1 Create CSR window

The [Create CSR] window allows you to create a private key and a corresponding Certificate Signing Request (CSR).

The values entered in this window must comply with the guidelines of the certificate authority selected as the destination because each certificate authority has unique guidelines.

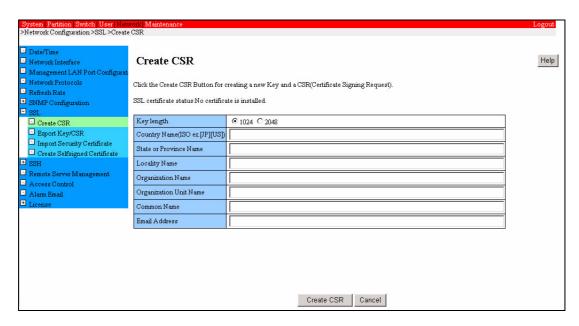


Figure 3.59 [Create CSR] window

3-132 C122-E003-02EN

Figure 3.60 Create CSR (In Progress) indicator

Table 3.100 Displayed and setting items in the [Create CSR] window

Item	Description
SSL certificate status	Current installation status of an SSL certificate:
	No certificate is installed.
	CSR has been generated.
	A self-signed certificate is installed.
	A signed certificate is installed.
Key length	Select a key length (number of bits) for the created private key by
	clicking the corresponding radio button:
	• 1024
	• 2048
Country Name	Specify two alphabetic characters as the ISO country code of the
	owner in the created CSR:
	• Japan: JP
	• USA: US
State or Province	Specify up to 56 valid characters as the state or province name of
Name	the owner in the created CSR.
Locality Name	Specify up to 56 valid characters as the city name of the owner in
	the created CSR.
Organization Name	Specify up to 56 valid characters as the organization name
	(company name) of the owner in the created CSR.
Organization Unit Name	Specify up to 56 valid characters as the organization unit name of
	the owner in the created CSR.

Item	Description
Common Name	Specify up to 56 valid characters as the server FQDN of the owner
	in the created CSR.
	Example: www.mycompany.com
	The browser uses this information to check the website. Some
	browsers refuse to establish a secure connection unless the same
	name is set for the server name and [Common Name] in the
	electronic certificate.
	The value in [Common Name] must not include a protocol
	specifier (http://), port number, or path name. Also, no wildcard,
	such as "*" and "?", or IP address can be used.
Email Address	Specify up to 40 valid characters as the e-mail address of the
	owner in the created CSR.

Table 3.101 Buttons in the [Create CSR] window

Button	Description
Create CSR	Specify the private key length, ISO country code of the owner, etc.,
	click the [Create CSR] button, and a dialog box opens.
	Clicking the [OK] button in the dialog box creates the private key
	and CSR.
Cancel	Clicking the [Cancel] button cancels the creation of a private key
	and a CSR. The private key length and the owner's ISO country
	code are restored to the initial information.

[Network Configuration] \rightarrow [SSL] \rightarrow [Create CSR]

(2) GUI operation

- 1 Specify the private key length, ISO country code of the owner, etc., and click the [Create CSR] button.
 - A dialog box opens to inform the user that the existing private key cannot be used once a new private key is created.
- Click the [OK] button in the dialog box.A new private key and a certificate signing request are created. This takes a
- few minutes. A confirmation dialog box opens when they have been created.

 3 Click the [OK] button in the confirmation dialog box to register the new private key.
 - The new private key is registered, and the [Export Key/CSR] window is displayed.

3-134 C122-E003-02EN

3.5.7.2 Export Key/CSR window

The [Export Key/CSR] window allows you to export a private key or Certificate Signing Request (CSR) from the MMB.

Note: For security reasons, care must be taken in storage of a private key. It is preferable to back up the private key because it is required for using the certificate issued for it.

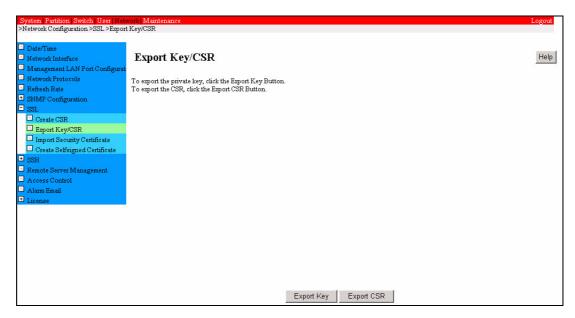


Figure 3.61 [Export Key/CSR] window

Table 3.102 Buttons in the [Export Key/CSR] window

Item	Description
Export Key	Exports a private key.
Export CSR	Exports a CSR.

(1) Menu operation

[Network Configuration] \rightarrow [SSL] \rightarrow [Export Key/CSR] [Network Configuration] \rightarrow [SSL] \rightarrow [Create CSR] \rightarrow [Create CSR]

(2) GUI operation

- Exporting a private key
 - 1 Click the [Export Key] button. A dialog box opens.

Specify a save path in the dialog box.The exported private key is saved with the specified path.

Exporting a CSR

- 1 Click the [Export CSR] button.
 - A dialog box opens.
- Specify a save path in the dialog box.The exported CSR is saved with the specified path.

3.5.7.3 Import Certificate window

The [Import Certificate] window can be used to import a signed electronic certificate from the certifying to the MMB.



Figure 3.62 [Import Certificate] window

Table 3.103 Buttons in the [Import Certificate] window

Item	Description
Browse	Opens a dialog box for selecting the file to be imported.
Import	Imports an electronic certificate.
Cancel	Cancels importing a file.

(1) Menu operation

[Network Configuration] \rightarrow [SSL] \rightarrow [Import Certificate]

3-136 C122-E003-02EN

(2) GUI operation

1 Click the [Browse...] button, select the file to be imported, and click the [Import] button.

The file with the electronic certificate is imported.

3.5.7.4 Create Selfsigned Certificate window

A self-signed certificate can be created in the [Create Selfsigned Certificate] window.

Note: Before creating a self-signed certificate, make sure that [Disable] is set in [HTTPS] in the [Network Protocols] window. If [Enable] is set, set [Disable] before creating a self-signed certificate in this window.

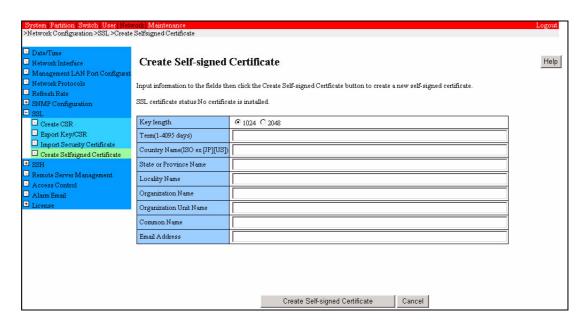


Figure 3.63 [Create Selfsigned Certificate] window

Table 3.104 Displayed and setting items in the [Create Selfsigned Certificate] window

Item	Description
SSL certificate status	Current installation status of an SSL certificate:
	No certificate is installed.
	CSR has been generated.
	A self-signed certificate is installed.
	A signed certificate is installed.

Item	Description
Key length	Select a key length (number of bits) for the created private key by
	clicking the corresponding radio button:
	• 1024
	• 2048
Term (1-4095 days)	Specify the validity term in number of days for the created self-
	signed certificate.
Country Name	Specify two alphabetic characters as the ISO country code of the
	owner in the created self-signed certificate:
	• Japan: [JP]
	• USA: [US]
State or Province	Specify up to 56 valid characters as the state or province name of
Name	the owner in the created self-signed certificate.
Locality Name	Specify up to 56 valid characters as the city name of the owner in
	the created self-signed certificate.
Organization Name	Specify up to 56 valid characters as the organization name
	(company name) of the owner in the created self-signed certificate.
Organization Unit Name	Specify up to 56 valid characters as the organization unit name of
	the owner in the created self-signed certificate.
Common Name	Specify up to 56 valid characters as the server domain name of the
	owner in the created self-signed certificate.
Email Address	Specify up to 40 valid characters as the e-mail address of the
	owner in the created self-signed certificate.

Table 3.105 Buttons in the [Create Selfsigned Certificate] window

Button	Description
Create Self-signed	Specify the private key length, ISO country code of the owner, etc.,
Certificate	click the [Create Self-signed Certificate] button, and a dialog box
	opens.
	Click the [OK] button in the dialog box to create a self-signed
	certificate.
Cancel	Click [Cancel] button to cancel creating a certificate.

[Network Configuration] \rightarrow [SSL] \rightarrow [Create Selfsigned Certificate]

(2) GUI operation

1 Before creating a self-signed certificate, make sure that [Disable] is set in [HTTPS] in the [Network Protocols] window. If [Enable] is set, set [Disable] (see Section 3.5.4, "Network Protocols window").

3-138 C122-E003-02EN

- 2 Specify the private key length, ISO country code of the owner, etc., and click the [Create Self-signed Certificate] button.
 - A confirmation dialog box opens.
- 3 Click the [OK] button in the dialog box. A self-signed certificate is created. This takes a few minutes. When it has been created, the window displays "SSL certificate status: A Self-signed certificate is installed.", indicating that the self-signed certificate has been installed.

3.5.8 **SSH** menu

The [SSH] menu provides the [Create SSH Server Key] window. This section explains the [Create SSH Server Key] window and its operations.

3.5.8.1 Create SSH Server Key window

A private key for the SSH server can be created in the [Create SSH Server Key] window.



Figure 3.64 [Create SSH Server Key] window

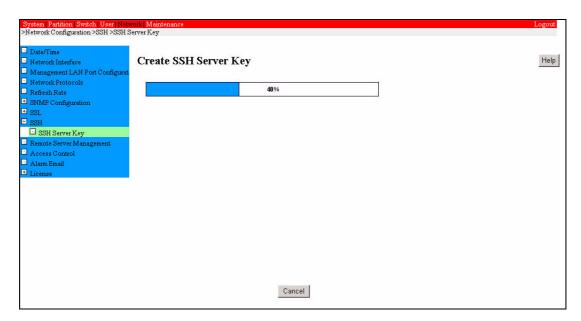


Figure 3.65 Create SSH Server Key (In Progress) indicator

Table 3.106 Displayed item in the [Create SSH Server Key] window

Item	Description
SSH Server Key status	Current installation status of an SSH server private key:
	SSH server key is NOT installed.

Table 3.107 Button in the [Create SSH Server Key] window

Button	Description
Create SSH Server Key	Creates an SSH server private key.

[Network Configuration] \rightarrow [SSH] \rightarrow [Create SSH Server Key]

(2) GUI operation

- 1 Before creating a private key, make sure that [Disable] is set in [SSH] in the [Network Protocols] window. If [Enable] is set, set [Disable] (see Section 3.5.4, "Network Protocols window").
- 2 Click the [Create SSH Server Key] button in this window. A private key is created. This takes a few minutes. A confirmation dialog box opens when it has been created.

3-140 C122-E003-02EN

3 Click the [OK] button in the confirmation dialog box to register the new private key.

The new private key is registered. To not register the new private key, click the [Cancel] button in the confirmation dialog box.

The new private key would then be discarded.

3.5.9 Remote Server Management window

User information required for MMB remote-control using RMCP can be specified in the [Remote Server Management] window.

Up to 24 users can be registered.

The default settings for all users are [Disabled] and [No Access]. Furthermore, the default user names are "User1" to "User24".

For MMB remote-control using RMCP, values must be specified in [User Name], [Password], and [Privilege], and [Enabled] must be set for the applicable user. Authentication for remote access uses the user names and passwords of users with [Enabled] set.

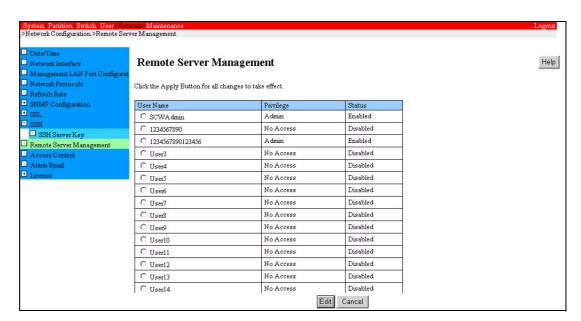


Figure 3.66 [Remote Server Management] window

Table 3.108 Displayed and setting items in the [Remote Server Management] window

Item	Description
User Name	User name.
	To specify user management information, click the radio button.
Privilege	User account privilege:
	Admin: Permission for all operations
	Operator: Permission to view the system and configure system
	settings
	User: Permission only to view the system
	CE: Permission to view the system and conduct system
	maintenance
	No Access: No permission for any operation
Status	Current account status:
	Enabled: Available
	Disabled: Not available

Table 3.109 Buttons in the [Remote Server Management] window

Button	Description
Edit	Select a user name, click the [Edit] button, and specify
	management information for the selected user.
Cancel	Click the [Cancel] button to revert to the original settings in
	management information.

[Network Configuration] → [Remote Server Management]

(2) GUI operation

1 Select a user by clicking the radio button of the user, and click the [Edit] button.

The [Edit User] window is displayed.

2 Specify management information for the user in the [Edit User] window.

3-142 C122-E003-02EN

3.5.9.1 Edit User window

User management information can be changed in the [Edit User] window.

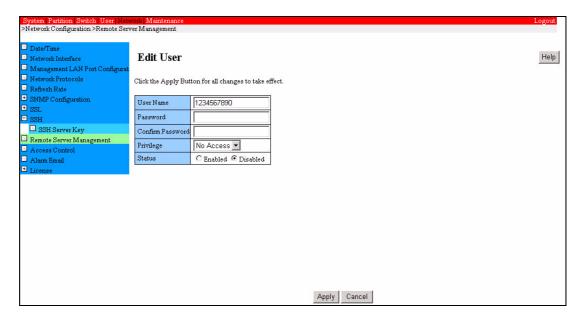


Figure 3.67 [Edit User] window

Table 3.110 Displayed and setting items in the [Edit User] window

Item	Description
User Name	Specify a user name.
	The user name must be from 8 to 16 characters long.
Password	Specify a password.
	The password must be from 8 to 16 characters long.
Confirm Password	Enter the password again for confirmation.
Privilege	Specify the user account privilege.
	One of the following must be selected:
	Admin: Permission for all operations
	• Operator: Permission to view the system and configure system
	settings
	• User: Permission only to view the system
	CE: Permission to view the system and conduct system
	maintenance
	 No Access: No permission for any operation
	A user with [No Access] is not allowed to access remotely.
Status	Specify whether the account is available:
	Enabled: Available
	Disabled: Not available

Table 3.111	Buttons in the	[Edit User]	window

Button	Description
Apply	Specify a name, password, etc., as management information for the
	selected user, and click the [Apply] button to set this specified
	information.
Cancel	Click the [Cancel] button to revert to the original settings for the
	user name, password, etc.

[Network Configuration] \rightarrow [Remote Server Management] \rightarrow [Edit]

(2) GUI operation

1 Specify user management information such as a user name and a password, and click the [Apply] button.

The specified user management information is then set.

3.5.10 Access Control window

The [Access Control] window enables access control based on network protocols so that MMB security is maintained.

Up to 64 filters can be set for access control.

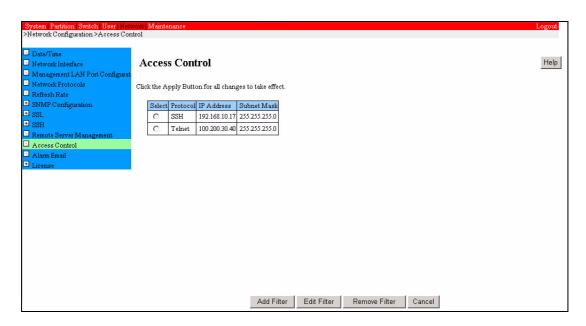


Figure 3.68 [Access Control] window

3-144 C122-E003-02EN

This window lists filters in alphabetic order by protocol name.

Table 3.112 Displayed and setting items in the [Access Control] window

Item	Description
Select	To edit or delete a filter, select the filter.
Protocol	Protocol subject to IP filtering:
	• HTTP
	• HTTPS
	• Telnet
	• SSH
	• SNMP
Access Control	Specifies whether to permit or deny access.
Access Control	Displays the access control settings.
IP Address	IP address that has access permission
Subnet Mask	Subnet mask of IP addresses that have access permission

Table 3.113 Buttons in the [Access Control] window

Button	Description
Add Filter	Click the [Add Filter] button. A new filter can be added in the
	[Add Filter] window that is displayed.
Edit Filter	Select a filter from the list of filters, and click the [Edit Filter]
	button. The selected filter can be edited in the [Edit Filter] window
	that is displayed.
Remove Filter	Select a filter from the list of filters, and click the [Remove Filter]
	button. The selected filter is removed.
Cancel	Click the [Cancel] button to not change information.

(1) Menu operation

[Network Configuration] → [Access Control]

(2) GUI operation

- · Adding a new filter
 - Click the [Add Filter] button.
 The [Add Filter] window is displayed.
 - 2 Add a new filter in the [Add Filter] window.
- Editing a filter
 - 1 To edit a filter, select the filter by clicking its radio button, and click the [Edit Filter] button. The [Edit Filter] window is displayed.
 - 2 Edit the filter in the [Edit Filter] window.

· Removing a filter

- 1 To remove a filter, select the filter by clicking its radio button, and click the [Remove Filter] button.
 - A confirmation dialog box opens for confirmation of removal.
- Click the [OK] button to remove the filter.The filter is removed, and the [Access Control] window is displayed again.
- The list of filters in the [Access Control] window can be checked to confirm that the filter has been removed.

3.5.10.1 Add Filter window/Edit Filter window

Filters can be added and edited using the [Add Filter] and [Edit Filter] windows, respectively.

This section describes only the [Edit Filter] window, which can be used to edit a filter, and does not describe the [Add Filter] window, which can be used to add a filter. Except for the different window titles, these windows have the same window format and operating methods.

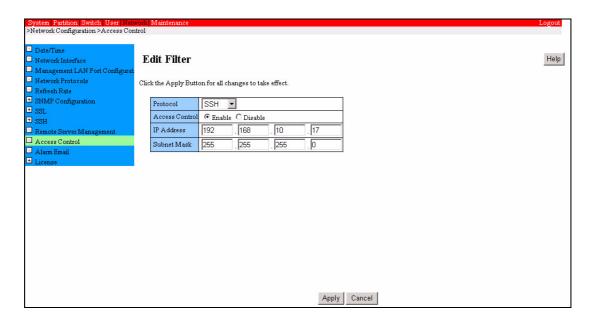


Figure 3.69 [Edit Filter] window

3-146 C122-E003-02EN

Table 3.114 Displayed and setting items in the [Edit Filter] window

Item	Description
Protocol	Select the target protocol for IP filtering from the pulldown list:
	• HTTP
	• HTTPS
	• Telnet
	• SSH
	• SNMP
Access Control	Select the [Enable] or [Disable] radio button to specify whether to
	use access control.
	Selecting [Disable] permits access from any IP address using the
	protocol selected above. Furthermore, the [IP Address] and
	[Subnet Mask] fields described below are grayed out, and input to
	them is not possible.
	Selecting [Enable] enables input in the [IP Address] and [Subnet
	Mask] fields and permits access from the specified IP address
	using the protocol selected in [Protocol].
IP Address	Enter an IP address that has access permission.
Subnet Mask	Enter the subnet mask of IP addresses that have access permission.

Table 3.115 Buttons in the [Edit Filter] window

Button	Description
Apply	After completing the [Protocol], [Access Control], and/or other
	settings, click the [Apply] button. The specified information takes effect on the system.
Cancel	Click the [Cancel] button to revert to the original settings for the
	protocol and access control.

[Network Configuration] \rightarrow [Access Control] \rightarrow [Add Filter]/[Edit Filter]

(2) GUI operation

1 Make [Protocol], [Access Control], and/or other settings, enter an IP address and a subnet mask, and then click the [Apply] button.

Additions or changes are then made to management information accordingly.

3.5.11 Alarm E-Mail window

E-mail notification of events that occur in the PRIMEQUEST-series machine can be specified in the [Alarm E-Mail] window.

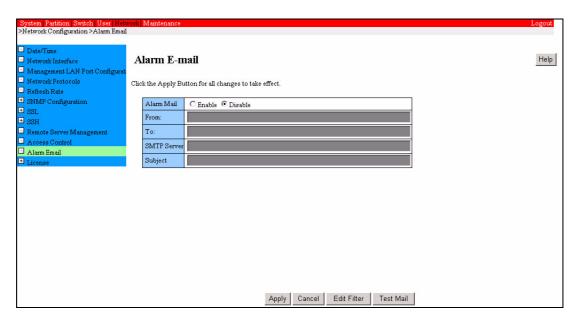


Figure 3.70 [Alarm E-Mail] window

Table 3.116 Displayed and setting items in the [Alarm E-Mail] window

Item	Description
Alarm Email	Specify whether alarm e-mail is sent for an event that occurs:
	Enable: Sends e-mail
	Disable: Does not send e-mail
From:	Specify the e-mail address that sends the e-mail.
To:	Specify the e-mail address that receives the e-mail.
SMTP Server	Specify the IP address or FQDN of an SMTP server.
	The FQDN can be specified only if a DNS is set up.
Subject	Specify a subject line for the e-mail.

Table 3.117 Buttons in the [Alarm E-Mail] window

Button	Description
Apply	Specify whether alarm e-mail is sent, the e-mail address of the
	sender, etc., and click the [Apply] button to set the specified
	values.
Cancel	Click the [Cancel] button to revert to the original settings for
	whether alarm e-mail is sent, the e-mail address of the sender, etc.

3-148 C122-E003-02EN

Button	Description
Filter	Click the [Filter] button to display the [Alarm Email Filtering
	Condition] window, which can be used to specify filtering
	conditions on the events that require sending of alarm e-mail.
Test Email	Click the [Test Email] button to send test alarm e-mail to the
	specified destination.

[Network Configuration] → [Alarm Email]

(2) GUI operation

- 1 Specify whether alarm e-mail is sent, the e-mail address of the sender, etc.
- 2 Click the [Filter] button to specify filtering conditions on the events that require sending of alarm e-mail.
 - The [Alarm Email Filtering Condition] window is displayed.
- 3 Specify filtering conditions in the [Alarm Email Filtering Condition] window (see Section 3.5.11.1, "Alarm Email Filtering Condition window").
- 4 Click the [Test Email] button to send test alarm e-mail. Test alarm e-mail is sent to the specified destination.
- Click the [Apply] button.The specified values in this window are then set.

3.5.11.1 Alarm Email Filtering Condition window

The [Alarm Email Filtering Condition] window allows you to specify filtering conditions for events that trigger the transmission of alarm Email messages.

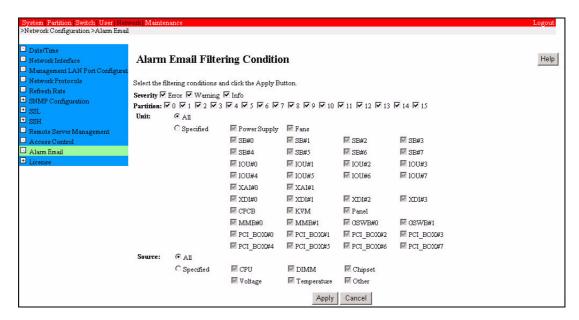


Figure 3.71 [Alarm Email Filtering Condition] window

Table 3.118 Displayed and setting items in the [Alarm Email Filtering Condition] window

Item	Description
Severity	Select the severity of events for event filtering by checking the
	corresponding check box.
	More than one severity options can be selected.
	• Error: Serious problem such as a hardware failure
	• Warning: Event that is not serious now but will possibly develop
	into a problem
	• Info: Normal event such as partition power-on
	By default, all of the options are selected.
Partition	Select a partition for event filtering by checking its check box.
	More than one partition can be selected.
	By default, all partitions are selected.

3-150 C122-E003-02EN

Item	Description
Unit	Select a target unit for event filtering.
	Select either [All] or [Specified] by clicking its radio button.
	Selecting [All] disables event filtering based on units.
	Selecting [Specified] enables event filtering based on units and
	checking of check boxes, so a unit can be selected for event
	filtering.
	The default setting is [All].
Source	Select a target source for event filtering.
	Select either [All] or [Specified] by clicking its radio button.
	Selecting [All] disables event filtering based on sources.
	Selecting [Specified] enables event filtering based on sources and
	checking of check boxes, so a source can be selected for event
	filtering.
	The default setting is [All].

Table 3.119 Buttons in the [Alarm Email Filtering Condition] window

Button	Description
Apply	Specify values in [Severity], [Partition], [Unit], etc., and click the
	[Apply] button to set the specified filtering conditions.
Cancel	Click the [Cancel] button to revert to the original settings in
	filtering conditions such as [Severity], [Partition], and [Unit].

[Network Configuration] \rightarrow [Alarm Email] \rightarrow [Filter]

(2) GUI operation

1 Specify values in [Severity], [Partition], [Unit], etc., and click the [Apply] button.

The specified filtering conditions are then set.

3.5.12 License menu

The [License] menu provides the following windows:

- [Mirror License]
- [32-way Upgrade License]

3.5.12.1 Mirror License window

A license required for enabling System Mirror mode can be registered in the [Mirror License] window.



Guarantee of operation

Do not use this field. Doing so may lead to a malfunction and result in data corruption or a device failure.

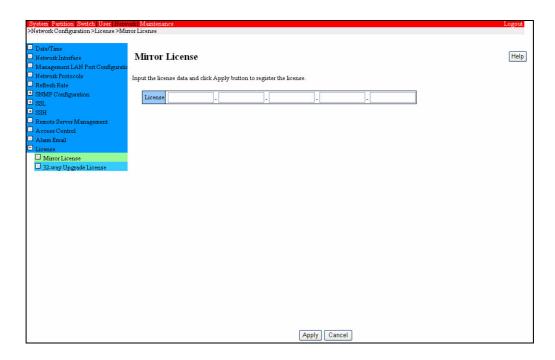


Figure 3.72 [Mirror License] window

3.5.12.2 32-way Upgrade License window

A license required for enabling 32-way operation functions can be registered in the [32-way Upgrade License] window.



3-152 C122-E003-02EN

Guarantee of operation

Do not use this field. Doing so may lead to a malfunction and result in destroyed data or a device failure.

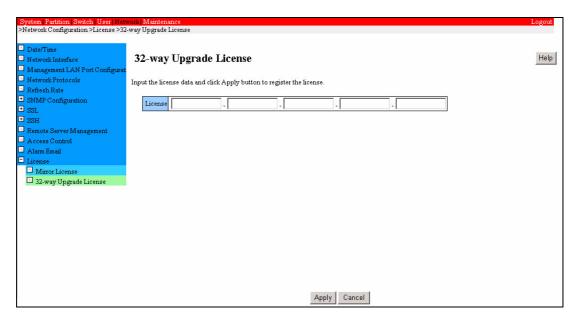


Figure 3.73 [32-way Upgrade License] window

3.6 Maintenance Menu

Maintenance on the PRIMEQUEST-series machine can be conducted from the [Maintenance] menu.

3.6.1 Firmware Update menu

The [Firmware Update] menu provides the following windows:

- [MMB Firmware Update]
- [GSWB Firmware Update]
- [PAL/SAL Firmware Update]
- [EFI Firmware Update]
- [BMC Firmware Update]

The following description covers these windows and operations on them. However, certified service engineers are responsible for updating firmware.

3.6.1.1 MMB Firmware Update window

MMB firmware can be updated in the [MMB Firmware Update] window.

Note: If the MMB is duplicated, Fujitsu recommends updating the firmware on the standby MMB first, switching the standby and active MMBs after the updating is completed, and then updating the firmware on the second MMB. This process is intended to prevent any interruption in system monitoring.

3-154 C122-E003-02EN

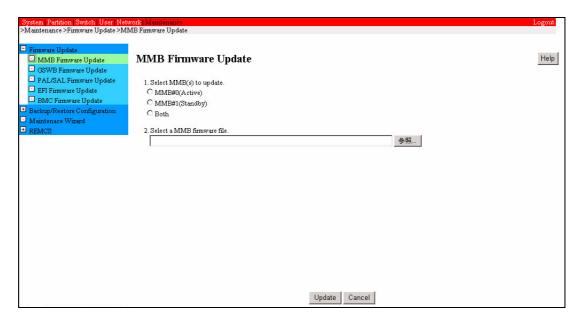


Figure 3.74 [MMB Firmware Update] window (selection)

Table 3.120 Displayed and setting items in the [MMB Firmware Update] window

Item	Description	
MMB Firmware Update	MMB Firmware Update (1/2)	
Select MMB(s) to	Select MMBs for an update:	
update.	• MMB#0 (Active)	
	• MMB#1 (Standby)	
	• Both	
Select a MMB firmware	Select an update file containing MMB firmware.	
file.		

Table 3.121 Buttons in the [MMB Firmware Update] window

Button	Description
Browse	Displays update files containing MMB firmware.
Update	Opens a confirmation dialog box displaying current firmware
	version information and update firmware version information.
Cancel	Cancels the settings made in this window.

[Maintenance] \rightarrow [Firmware Update] \rightarrow [MMB Firmware Update]

(2) GUI operation

- Procedure
 - 1 Select an MMB for an update by clicking its radio button in [Select MMB(s) to update] in the [MMB Firmware Update-1] window.
 - Using the [Browse...] button or [Select a firmware file] in the [MMB Firmware Update-1] window, select an update file containing MMB firmware, and click the [Update] button.
 A confirmation dialog box opens with current firmware version information and update firmware version information displayed.
 If the specified file does not contain MMB firmware, a warning dialog box opens with an error message displayed. Then, a consistency check is
 - opens with an error message displayed. Then, a consistency check is performed to check whether the version of MMB firmware in the specified file matches that in other firmware files. If the versions do not match, a confirmation dialog box opens to indicate that they do not match and ask whether to continue or cancel processing.
 - 3 Click [OK] in the confirmation dialog box to continue the update. The MMB firmware is updated.
- · Checking after an update
 - If the [(Active)] MMB or [Both] was selected in [Select MMB(s) to update] in the [MMB Firmware Update-1] window
 - To update the firmware, reboot the MMB, and connect to the MMB again after the reboot. After establishing a connection to the MMB again, display the [MMB#x] window from the [System] menu, and check the MMB firmware version in this window to confirm the update.
 - If the firmware was not updated, the error status can be checked in the [System Event Log] window displayed from the [System] menu.
 - If the [(Standby)] MMB and not the [(Active)] MMB was selected in [Select MMB(s) to update] in the [MMB Firmware Update-1] window
 The [MMB Firmware Update-2] window indicates that the firmware update of the [(Standby)] MMB (not the [(Active)] MMB) is completed. Confirm the completion of the firmware update in this window.

3-156 C122-E003-02EN

3.6.1.2 GSWB Firmware Update window

GSWB firmware can be updated in the [GSWB Firmware Update] window.

Note: Upload processing does not overwrite firmware on the active GSWB but it does so on the other GSWB.

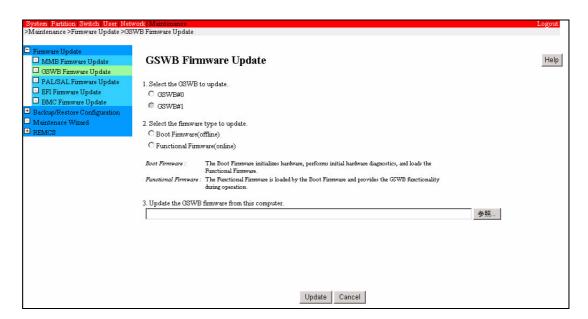


Figure 3.75 [GSWB Firmware Update] window

Table 3.122 Displayed and setting items in the [GSWB Firmware Update] window

Item	Description
Select the firmware to	GSWB#0: Specify GSWB#0.
update in which.	GSWB#1: Specify GSWB#1.
Select the firmware type	Boot Firmware (offline): Specify the offline firmware.
to update.	• Functional Firmware (Online): Specify the online firmware.
Update GSWB	Specify the firmware path.
Firmware from your	
computer.	

Table 3.123 Buttons in the [GSWB Firmware Update] window

Button	Description
Browse	Displays update files containing GSWB firmware.
Update	Uploads and installs GSWB firmware.
Cancel	Cancels the settings made in this window.

[Maintenance] \rightarrow [Firmware Update] \rightarrow [GSWB Firmware Update]

(2) GUI operation

- 1 Select the GSWB the firmware of which you want to update.
- 2 Select the type of the firmware to be updated from Boot Firmware (Offline) and Functional Firmware (Online).
- 3 Click the [Browse...] button to display a list of selections, select the update GSWB firmware, and click the [Update] button. Click the [OK] button in the confirmation window.
 - The firmware is uploaded, and installation starts. When firmware installation is completed, a confirmation dialog box opens for confirmation to restart the system.
 - If selected file from the displayed list is not a GSWB firmware file, a warning dialog box opens with an error message displayed.
- 4 Click [OK] in the confirmation dialog box to restart the system using the installed firmware.
 - The system is restarted using the installed GSWB firmware.
 - If you click the [Cancel] button, the system will not restart.

3-158 C122-E003-02EN

3.6.1.3 PAL/SAL Firmware Update window

The PAL/SAL firmware stored on an SB can be updated in the [PAL/SAL Firmware Update] window. To actually update the firmware in a partition, the partition must be rebooted.

Note: Before updating PAL/SAL firmware, the OS in the partition must be shut down.

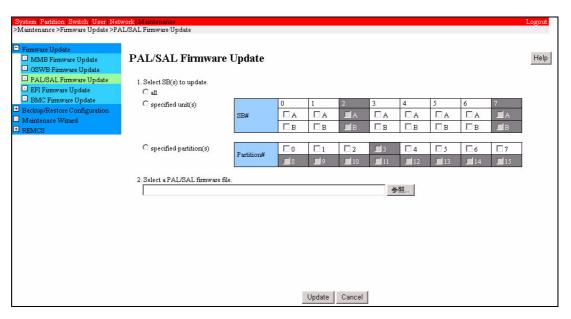


Figure 3.76 [PAL/SAL Firmware Update] window (selection)

Uninstalled devices and partitions that have not been configured are grayed out and cannot be selected.

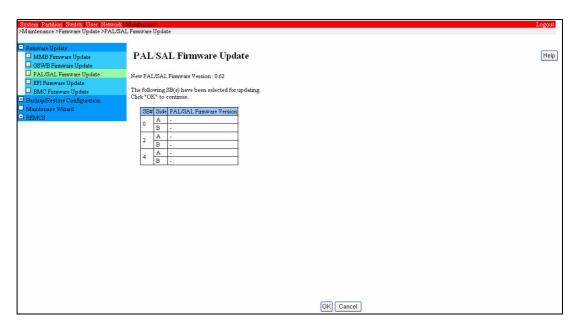


Figure 3.77 [PAL/SAL Firmware Update] window (when All or an SB is specified)

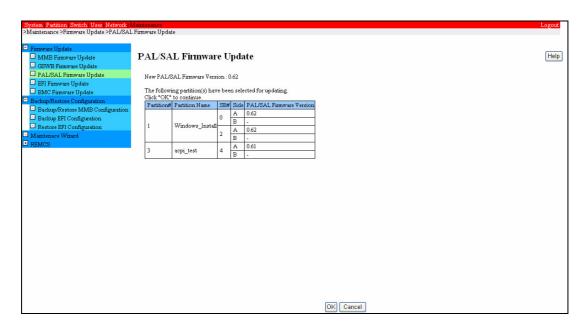


Figure 3.78 [PAL/SAL Firmware Update] window (when a partition is specified)

3-160 C122-E003-02EN

Table 3.124 Displayed and setting items in the [PAL/SAL Firmware Update] window (selection)

Item	Description
Select SB(s) to update	Select the units that store PAL/SAL firmware by clicking radio
	buttons as follows:
	• all: Used to select all SBs installed in the system.
	• specified unit(s): Used to select either the A or B sides of
	individual SBs.
	• specified partition(s): Used to select partitions.
	Only the check boxes of units next to a clicked radio button can be
	checked. Other check boxes are grayed out, and input for them is
	not possible.
Select PAL/SAL	Specify an update file containing PAL/SAL firmware.
firmware file	

Table 3.125 Displayed items in the [PAL/SAL Firmware Update] window (when All or an SB is specified)

Item	Description
New PAL/SAL	Update firmware version information
Firmware Version	
SB#	SB number
Side	A or B side of a split SB
PAL/SAL Firmware	Current firmware version information
Version	

Table 3.126 Displayed items in the [PAL/SAL Firmware Update] window (when a partition is specified)

Item	Description
New PAL/SAL	Update firmware version information
Firmware Version	
Partition#	Partition number
Partition Name	Partition name
PAL/SAL Firmware	Current firmware version information
Version	

Table 3.127 Buttons in the [PAL/SAL Firmware Update] window

Button	Description
Browse	Displays update files containing PAL/SAL firmware.
Upload	Opens a confirmation dialog box displaying current firmware
	version information and version information on the firmware to be
	uploaded.

Button	Description
Cancel	Cancels the settings made in this window.

 $[Maintenance] \rightarrow [Firmware Update] \rightarrow [PAL/SAL Firmware Update]$

(2) GUI operation

- 1 Select the units that store the PAL/SAL firmware to be updated in [Select SB(s) to update].
- 2 Click the [Browse...] button, specify an update file containing PAL/SAL firmware, and click the [Update] button.
 The partition that stores the PAL/SAL firmware to be updated must be reset, and a confirmation dialog box opens for confirmation to reset the partition.
 If the specified file does not contain PAL/SAL firmware, a warning dialog box opens with an error message displayed. Then, a consistency check is performed to check whether the version of PAL/SAL firmware in the specified file matches that of other firmware files. If the versions do not match, a confirmation/warning dialog box opens for confirmation to continue processing.
- 3 Click the [OK] button in the confirmation dialog box to continue the update. Another confirmation dialog box opens with current firmware version information and update firmware version information displayed.
 - If [all] or [specified unit(s)] was specified in [Select SB(s) to update], the [PAL/SAL Firmware Upload-2] window is displayed.
 - If [specified partition(s)] was specified in [Select SB(s) to update], the [PAL/SAL Firmware Upload-3] window is displayed.
- 4 Click the [OK] button in the [PAL/SAL Firmware Upload-2] or [PAL/SAL Firmware Upload-3] window to continue the update.

 To indicate the completion of the update, a confirmation dialog box opens when the update ends normally.
- Reboot the partition.The firmware in the partition is actually updated.

3-162 C122-E003-02EN

3.6.1.4 EFI Firmware Update window

EFI firmware stored on the BMM board can be updated in the [EFI Firmware Update] window.

Note: Before updating EFI firmware, the OS in the partition must be shut down.

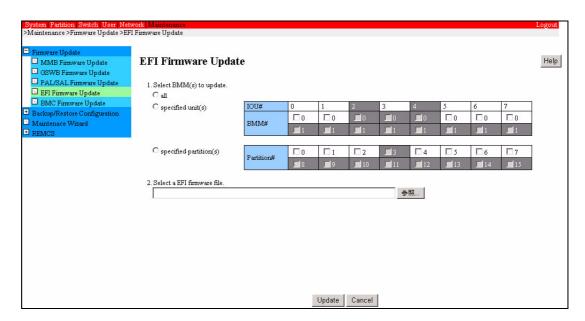


Figure 3.79 [EFI Firmware Update] window

Uninstalled devices and partitions that have not been configured are grayed out and cannot be selected.

Table 3.128 Displayed and setting items in the [EFI Firmware Update] window

Item	Description
Select BMM(s) to	Select the BMM units that store EFI firmware by clicking a radio
update	button as follows:
	• all: Used to select all BMMs installed in the system.
	• specified unit(s): Used to select either BMM board.
	• specified partition(s): Used to select a partition.
	Only the check boxes of units next to a clicked radio button can be
	selected. Other check boxes are grayed out, and input for them is
	not possible.
Select EFI firmware file	Specify an update file containing EFI firmware.

Table 3.129 Buttons in the [EFI Firmware Update] window

Button	Description
Browse	Displays update files containing EFI firmware.
Update	Opens a confirmation dialog box displaying current firmware version information and update firmware version information.
Cancel	Cancels the settings made in this window.

[Maintenance] \rightarrow [Firmware Update] \rightarrow [EFI Firmware Update]

(2) GUI operation

- 1 Select the BMM units that store the EFI firmware to be updated in [Select BMM(s) to update].
- 2 Click the [Browse...] button, specify an update file containing EFI firmware, and click the [Update] button.
 - The partition that stores the EFI firmware must be reset, and a confirmation dialog box opens for confirmation to reset the partition.
 - If the specified file does not contain EFI firmware, a warning dialog box opens with an error message displayed. Then, a consistency check is performed to check whether the version of EFI firmware in the specified file matches that of other firmware files. If the versions do not match, a dialog box opens to indicate that they do not match and ask whether to continue or cancel processing.
- 3 Click the [OK] button in the confirmation dialog box to continue the update. Another confirmation dialog box opens with current firmware version information and update firmware version information displayed.
- 4 Click the [OK] button in the confirmation dialog box to continue the update. To indicate the completion of the update, a confirmation dialog box opens when the update ends normally.

3-164 C122-E003-02EN

3.6.1.5 BMC Firmware Update window

BMC firmware can be updated in the [BMC Firmware Update] window.

Note: When the BMC is updated, the BMC reboots itself, causing a temporary interruption in service. To prevent possible problems, Fujitsu recommends that partitions linked to the BMC to be updated be shut down before the update.

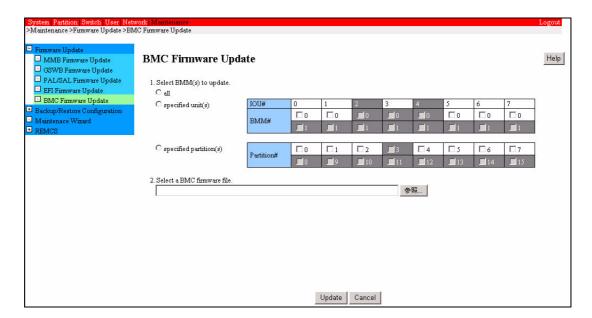


Figure 3.80 [BMC Firmware Update] window

Uninstalled devices and partitions that have not been configured are grayed out and cannot be selected.

Table 3.130 Displayed and setting items in the [BMC Firmware Update] window

Item	Description
Select BMM(s) to	Select the BMM units that store BMC firmware by clicking a radio
update	button as follows:
	• All: Used to select all BMMs installed in the system.
	• Specified unit(s): Used to select either BMM board.
	• Specified partition(s): Used to select a partition.
	Only the check boxes of units next to a clicked radio button can be
	checked. Other check boxes are grayed out, and input for them is
	not possible.
Select BMC firmware	Specify an update file containing BMC firmware.
file	

Table 3.131 Buttons in the [BMC Firmware Update] window

Button	Description				
Browse	Displays update files containing BMC firmware.				
Update	Opens a confirmation dialog box displaying current firmware				
	version information and update firmware version information.				
Cancel	Cancels the settings made in this window.				

[Maintenance] \rightarrow [Firmware Update] \rightarrow [BMC Firmware Update]

(2) GUI operation

- 1 Select the BMM units that store the BMC firmware to be updated in [Select BMM(s) to update].
- 2 Click the [Browse...] button, specify an update file containing BMC firmware, and click the [Update] button.
 - A confirmation dialog box opens with current firmware version information and update firmware version information displayed.
 - If the specified file is not a BMC firmware file, an error message is displayed. Then, a consistency check is performed to check whether the version of BMC firmware in the specified file matches that of other firmware files. If the versions do not match, a dialog box opens to indicate that they do not match and ask whether to continue or cancel processing.
- Click the [OK] button in the confirmation dialog box to continue the update. The update is executed. When the update ends normally, a confirmation dialog box opens to indicate that the update is completed.

3-166 C122-E003-02EN

3.6.2 Backup/Restore Configuration menu

[Backup/Restore Configuration] menu provides the following windows:

- [Backup/Restore MMB Configuration]
- [Backup EFI Configuration]
- [Restore EFI Configuration]

This section describes these windows and their operations.

3.6.2.1 Backup/Restore MMB Configuration window

MMB configuration information can be backed up and restored using the [Backup/ Restore MMB Configuration] window. The MMB configuration information is saved on the PC that runs the Web browser.

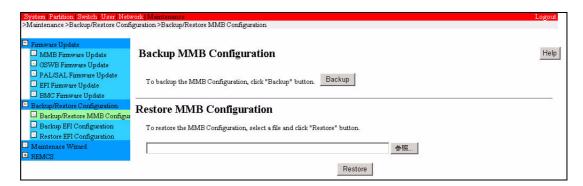


Figure 3.81 [Backup/Restore MMB Configuration] window

Table 3.132 Buttons in the [Backup/Restore MMB Configuration] window

Item	Description					
Backup	Click the [Backup] button and a dialog box opens, and the save					
	destination can be specified in the dialog box. Select the save path,					
	and click the [OK] button to download the file.					
	The default name of the backup MMB configuration file is:					
	MMB_(backup-date)_(MMB-version).dat					
Browse	Click the [Browse] button to display MMB configuration files					
	backed up on a remote PC.					
Restore	Select an MMB configuration file saved on a remote PC, and click					
	the [Restore] button to transfer the file to the MMB. When file					
	transfer to the MMB is completed, the [Backup/Restore MMB					
	Configuration] dialog box opens for confirmation to restore the					
	MMB configuration. Click the [OK] button to restore the MMB					
	configuration.					

[Maintenance] → [Backup/Restore Configuration] → [Backup/Restore MMB Configuration]

(2) GUI operation

- · Backing up MMB configuration information
 - Click the [Backup] button.
 The save destination dialog box opens in the browser.
 - 2 Select the save path in the save destination dialog box, and click the [OK] button.

The MMB configuration information file is downloaded.

- · Restoring MMB configuration information
 - 1 Click the [Browse...] button, and select a backup MMB configuration file.
 - 2 Click the [Restore] button.
 The file is transferred to the MMB, and the [MMB Configuration File Information:] dialog box opens.
 - 3 Click the [OK] button in the [MMB Configuration File Information:] dialog box.

The MMB configuration file is restored.

3-168 C122-E003-02EN

3.6.2.2 Backup EFI Configuration window

The [Backup EFI Configuration] window can be used to back up EFI configuration information to the PC whose browser displays this window.

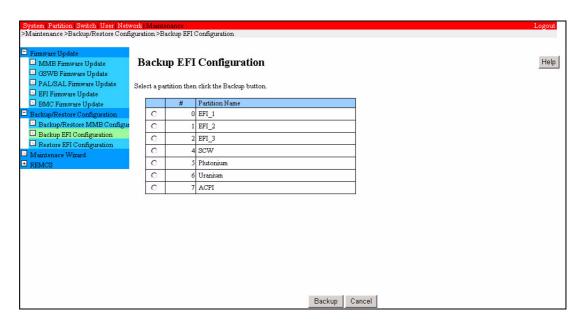


Figure 3.82 [Backup EFI Configuration] window

Table 3.133 Displayed and setting items in the [Backup EFI Configuration] window

Item	Description						
	Select the partition whose EFI configuration information is to be						
	backed up.						
#	Partition number						
Partition Name	Partition name						

Table 3.134 Buttons in the [Backup EFI Configuration] window

Button	Description						
Backup	Select the partition whose EFI configuration information is to be						
	backed up, click the [Backup] button, and a dialog box opens in the						
	browser. Select the save path, and click the [OK] button to						
	download the file.						
	The default name of the backup EFI configuration file is:						
	• partition-number_save-date_EFI-version.dat						
Cancel	Click the [Cancel] button to cancel backing up the EFI						
	configuration file.						

[Maintenance] → [Backup/Restore Configuration] → [Backup EFI Configuration]

(2) GUI operation

- 1 To back up EFI configuration information of a partition, select the partition by clicking its radio button, and click the [Backup] button.

 The save destination dialog box opens.
- 2 Select the save path in the save destination dialog box, and click the [OK] button.

The EFI configuration information file is downloaded.

3.6.2.3 Restore EFI Configuration window

EFI configuration information can be restored using the [Restore EFI Configuration] window.

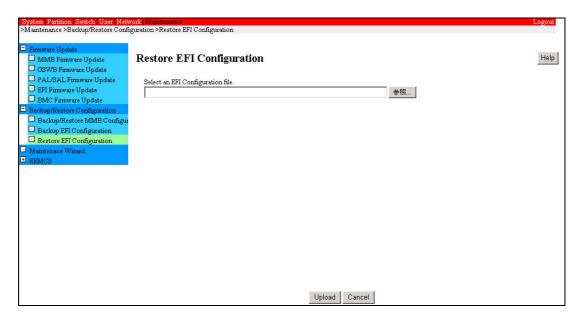


Figure 3.83 [Restore EFI Configuration-1] window

3-170 C122-E003-02EN

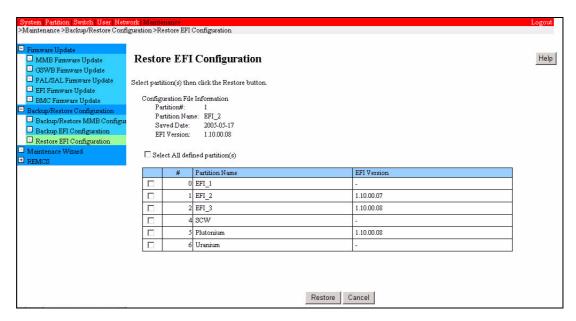


Figure 3.84 [Restore EFI Configuration-2] window

Table 3.135 Displayed and setting items in the [Restore EFI Configuration] window

Item	Description							
Select an EFI	Select a file containing backup EFI configuration information.							
Configuration file								
Configuration File	Information on backup EFI configuration files:							
Information:	Partition#: Partition number							
	Partition Name: Partition name							
	Saved Date: Save date of the EFI configuration information							
	EFI Version: EFI version							
Select All defined	Check this check box to select all partitions as the restoration							
partition(s)	destination.							
	Select partitions as the restoration destination by checking their							
	check boxes.							
#	Partition number of a partition that is the restoration destination							
Partition Name	Partition name of a partition that is the restoration destination							
EFI Version	Version of the EFI currently installed in a partition that is the							
	restoration destination.							

Table 3.136 Buttons in the [Restore EFI Configuration] window

Button	Description				
Browse	Displays the backup EFI configuration information files stored on				
	a remote PC.				
Upload	Transfers an EFI configuration information file to the MMB.				
Cancel	Cancels transferring an EFI configuration information file.				
Restore	Restores an EFI configuration information file.				
Cancel	Cancel restoring an EFI configuration information file.				

[Maintenance] → [Backup/Restore Configuration] → [Restore EFI Configuration]

(2) GUI operation

- 1 Click the [Browse...] button, and select a backup EFI configuration information file stored on a remote PC.
- 2 Click the [Upload] button.
 The EFI configuration information file is transferred to the MMB, and the [Restore EFI Configuration-2] window is displayed.
- 3 In the [Restore EFI Configuration-2] window, select the partition in which the EFI configuration information file is to be restored, and click the [Restore] button.

The EFI configuration information file is restored.

3-172 C122-E003-02EN

3.6.3 Maintenance Wizard window

The [Maintenance Wizard] window can be used for device maintenance with a wizard.



Guarantee of operation

Fujitsu certified service engineers use the [Maintenance Wizard] window for maintenance. Customers should not use this window. Doing so may cause a failure.

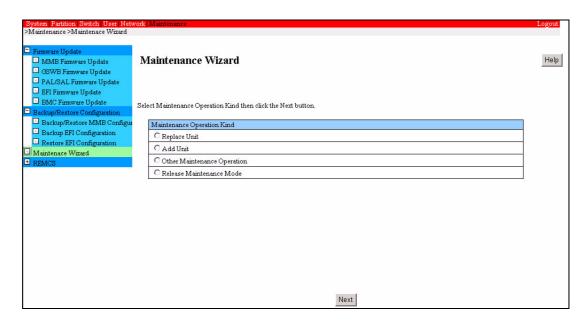


Figure 3.85 [Maintenance Wizard] window

Table 3.137 Buttons in the [Maintenance Wizard] window

Button	Description					
Next	Displays the [Maintenance Wizard (Select Maintenance Mode)]					
	window.					

(1) Menu operation

[Maintenance] → [Maintenance Wizard]

3.6.4 REMCS menu

The REMCS menu can be used for REMCS-related operations and settings.

For details on REMCS, see the *PRIMEQUEST 480/440 Operation Manual* (C122-E002 EN).

CHAPTER 4 CLI Operations

This chapter describes operations performed to run and manage the PRIMEQUESTseries machine via the command line interface (CLI).

4.1 Basic CLI Operations

This section describes the command line interface (CLI) provided with the MMB.

The CLI can be accessed in either of the following two ways:

- Through the MMB serial port
- From a remote PC via the MMB management LAN

4.1.1 Access through the serial interface

- 1 Connect the MMB to the user terminal (e.g., notebook PC) with an RS-232C cross cable.
- 2 Launch the terminal software (e.g., Windows HyperTerminal) on the terminal, and set up the terminal software as follows.

Table 4.1 Setting items of terminal software

Setting item	Value
Bits per second	19200
Data bit	8
Parity	None
Stop bit	1
Flow control	None
Emulation	VT100

3 Enter a user name and password to log in when the login prompt is displayed.

4.1.2 Access via the management LAN interface

- 1 Connect the MMB to a remote PC with a straight LAN cable.
- 2 Launch a Telnet or SSH client on the remote PC, and specify the IP address of the MMB and the Telnet port number or the SSH port number to establish a connection.
- 3 Enter an account name and password to log in.

Note: The connection function provided by the MMB uses the SSH V2 protocol. Therefore, terminal software that supports SSH V2 must be prepared in order to establish an MMB connection using the SSH protocol.

4.1.3 List of CLI commands

The following table lists CLI commands. The letters in the Privilege column mean the following:

- Y: The command can be executed.
- N: The command cannot be executed.

Table 4.2 CLI commands

			Priv	ilege		
No	Command name	Admin	Operator	User	CE	Remarks
1	factory_default	Y	N	N	Y	Resets MMB configuration information to
						the default values.
2	clear access_control	Y	N	N	N	Clears the access control settings.
3	clear ssh_key	Y	Y	Y	Y	Deletes an SSH public key.
4	power off	Y	N	N	N	Powers off the entire system or specified partitions.
5	power on	Y	N	N	N	Powers on the entire system or specified partitions.
6	download ssh_key	Y	Y	Y	Y	Downloads an SSH public key.
7	set date	Y	N	N	N	Sets a date and time.
8	set timezone	Y	N	N	N	Sets a time zone.
9	set gateway	Y	N	N	N	Sets a default gateway.
10	set http	Y	N	N	N	Enables or disables the HTTP server.
11	set http_port	Y	N	N	N	Specifies the port used to accept an HTTP session.
12	set https	Y	N	N	N	Enables or disables the HTTPS server.

4-2 C122-E003-02EN

		Privilege				
No	Command name	Admin	Operator	User	CE	Remarks
13	set https_port	Y	N	N	N	Specifies the port used to accept an HTTPS
1.4	. 1	3.7	N.T.	N.T.	N.T.	session.
14	set ssh	Y	N	N	N	Enables or disables SSH.
15	set ssh_port	Y	N	N	N	Specifies the port used to accept an SSH session.
16	set telnet	Y	N	N	N	Enables or disables Telnet.
17	set telnet_port	Y	N	N	N	Specifies the port used to accept a Telnet connection.
18	set ip	Y	N	N	N	Sets an IP address and a net mask for the management LAN interface.
19	set hostname	Y	N	N	N	Sets an MMB host name in the Fully Qualified Domain Name (FQDN) format.
20	set remcs	Y	N	N	Y	Sets routing for the REMCS port of the management LAN.
21	show access_control	Y	N	N	N	Displays the current access control settings.
22	show date	Y	Y	Y	Y	Displays the current date and time.
23	show timezone	Y	Y	Y	Y	Displays the time zone.
24	show gateway	Y	N	N	N	Displays the default gateway IP address that
						is set for the management LAN interface.
25	show http	Y	Y	Y	Y	Displays the current HTTP server status.
26	show http_port	Y	Y	Y	Y	Displays the port currently connected to an HTTP session.
27	show https	Y	Y	Y	Y	Displays the current HTTPS server status.
28	show https_port	Y	Y	Y	Y	Displays the port currently connected to an HTTPS session.
29	show ssh	Y	Y	Y	Y	Displays the current SSH server status.
30	show ssh_port	Y	Y	Y	Y	Displays the port currently connected to an SSH session.
31	show telnet	Y	Y	Y	Y	Displays the current Telnet server status.
32	show telnet_port	Y	Y	Y	Y	Displays the port currently connected to a Telnet session.
33	show ip	Y	Y	Y	Y	Displays the IP address and the net mask that are set for the management LAN interface.
34	show hostname	Y	Y	Y	Y	Displays the MMB host name.
35	show network	Y	Y	Y	Y	Displays the network configuration that is set for the management LAN interface.

		Privilege				
No	Command name	Admin	Operator	User	CE	Remarks
36	show remcs	Y	N	N	Y	Displays the routing configuration
						information for the REMCS port of the management LAN.
37	who	Y	Y	Y	Y	Displays the login names and times of users who are logged in to the MMB.
38	help	Y	Y	Y	Y	Displays help information on available commands.
39	update MMB	Y	N	N	Y	Updates MMB firmware.
40	update BMC	Y	N	N	Y	Updates BMC firmware.
41	update EFI	Y	N	N	Y	Updates EFI firmware.
42	update SAL	Y	N	N	Y	Updates PAL/SAL firmware.
43	connect GSWB	Y	Y	Y	Y	Establishes a connection to the specified GSWB (0 or 1).
44	exit	Y	Y	Y	Y	Logs out.
45	password	Y	Y	Y	Y	Changes the password.
46	ping	Y	Y	Y	Y	Sends an ICMP echo message to the
						destination specified in <ip address=""> or</ip>
						<server name="">.</server>

4-4 C122-E003-02EN

4.2 Setting Commands

The following commands are used to specify information:

- factory default
- clear access control
- clear ssh key
- power off
- power on
- download ssh_key
- set date
- set timezone
- set gateway
- set http
- set http port
- set https
- set https port
- set ssh
- set ssh port
- set telnet
- set telnet port
- set ip
- set hostname
- set remcs

This section describes how to use these commands.

4.2.1 factory_default

This command resets MMB configuration information to the default values.

Executing the command deletes:

- All account information
- Network configuration information
- Logging information

Therefore, user and network configurations must be set up again after the command is executed.

• Privilege: Users with the Admin privilege or CE privilege

```
factory_default [-f]
```

(2) Options

-f: Sets factory default values without prompting for confirmation.

(3) Examples

```
# factory_default
Reset to factory default [n]: y
```

4.2.2 clear access_control

Clears the IP filtering settings.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
clear access_control
```

(2) Options

None

(3) Examples

None

4.2.3 clear ssh_key

This command deletes a public key that is registered for a logged-in user and used for SSH public key authentication.

• Privilege: Any user

(1) Synopsis

```
clear ssh_key
```

4-6 C122-E003-02EN

(2) Options

None

(3) Examples

None

4.2.4 power off

This command powers off the entire system or specified partitions.

A partition that is specified in the parameter but not yet configured is ignored. The command does not have an effect on a specified partition that is already off.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
power off [chassis | partition [all | <partition#> [, | -] <partition#>]]] {force}
```

(2) Options

• chassis: Powers off the cabinet.

The OSs of all partitions are shut down before the cabinet is powered off. partition: Shuts down the OSs of the partitions whose partition numbers are specified and then powers off the partitions. Partitions can be specified in any of the following ways:

- Specify the -all option (which selects all defined partitions).
- Specify partition numbers delimited by commas.
- Specify a partition number range.
- force: Forcibly powers off a partition without shutting down the OS running in it.

(3) Examples

None

4.2.5 power on

This command powers on the entire system or specified partitions.

A partition that is specified in the parameter but not yet configured is ignored. The command does not have an effect on a specified partition that is already on.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
power on [chassis | partition [all | <partition#> [, | -] <partition#>]]]
```

(2) Options

- chassis: Powers on the cabinet.
 This option does not power on partitions.
- partition: Powers on the partitions whose partition numbers are specified.
 - If the cabinet has not yet been powered on, this option automatically powers on the cabinet before powering on the specified partitions. Partitions can be specified in any of the following ways:
 - Specify the -all option (which selects all defined partitions).
 - Specify partition numbers delimited by commas.
 - Specify a partition number range.

(3) Examples

None

4.2.6 download ssh_key

This command downloads and registers a public key from a specified server so that a logged-in user can use the public key for SSH public key authentication.

The input format for the URL is as follows:

- http://host/path/file
- ftp://host/path/file

If no server is specified, the following message is displayed to prompt for URL input:

#download ssh key

URL:

• Privilege: Users with the User privilege

4-8 C122-E003-02EN

download ssh_key<URL>

(2) Options

None

(3) Examples

None

4.2.7 set date

This command sets a date and time. Specify a date and time in the following format:

- MM: Month (01 to 12)

- DD : Day (day of the month)

- hh : Hour (00 to 23)

- mm : Minute (00 to 59)

- CC : See Options.

- YY : See Options.

- ss : See Options.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set date MMDDhhmm [{CC} YY] {,ss}
```

(2) Options

- CC : Specify the first two digits of a year.

- YY : Specify the last two digits of a year.

- ss : Specify the seconds.

(3) Examples

None

4.2.8 set timezone

This command sets a time zone.

The date and time must be set again with the set date command after a time zone is set.

• Privilege: Users with the Admin privilege

(1) Synopsis

set timezone <timezone>

(2) Options

None

(3) Examples

None

4.2.9 set gateway

This command sets the default gateway.

• Privilege: Users with the Admin privilege

(1) Synopsis

set gateway <ip address>

(2) Options

None

(3) Examples

None

4.2.10 set http

This command enables or disables the HTTP server.

• Privilege: Users with the Admin privilege

4-10 C122-E003-02EN

set http [enable | disable]

(2) Options

None

(3) Examples

None

4.2.11 set http_port

This command sets the port number of the port used to accept an HTTP session.

The default setting is 8081. The setting range is 1024 to 65535.

• Privilege: Users with the Admin privilege

(1) Synopsis

set http_port <port>

(2) Options

None

(3) Examples

None

4.2.12 set https

This command enables or disables the HTTPS server.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set https [enable | disable]
```

(2) Options

None

(3) Examples

None

4.2.13 set https_port

This command sets the port number of the port used to accept an HTTPS session.

The default setting is 432. The setting range is 432,1024 to 65535.

• Privilege: Users with the Admin privilege

(1) Synopsis

set https_port <port>

(2) Options

None

(3) Examples

None

4.2.14 set ssh

This command enables or disables SSH.

• Privilege: Users with the Admin privilege

(1) Synopsis

set ssh [enable | disable]

(2) Options

None

(3) Examples

None

4-12 C122-E003-02EN

4.2.15 set ssh_port

This command sets the port number of the port used to accept an SSH session.

The default setting is 22. The setting range is 22,1024 to 65535.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set ssh_port <port>
```

(2) Options

None

(3) Examples

None

4.2.16 set telnet

This command enables or disables Telnet.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set telnet [enable | disable]
```

(2) Options

None

(3) Examples

None

4.2.17 set telnet_port

This command sets the port number of the port used to accept a Telnet connection.

The default setting is 23. The setting range is 23,1024 to 65535.

• Privilege: Users with the Admin privilege

set telnet port <port>

(2) Options

None

(3) Examples

None

4.2.18 set ip

This command sets an IP address and a net mask for the management LAN interface.

Specify the physical IP address of the MMB connected to a serial port.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set ip <ip address> <netmask>
```

(2) Options

None

(3) Examples

None

4.2.19 set hostname

This command sets an MMB host name in the Fully Qualified Domain Name (FQDN) format.

• Privilege: Users with the Admin privilege

(1) Synopsis

```
set hostname <host name><domain name>
```

4-14 C122-E003-02EN

(2) Options

None

(3) Examples

```
# set hostname XXXXX.fujitsu.com
```

4.2.20 set remcs

This command sets routing for the REMCS port of the management LAN.

Note: If this command is used to change the SMTP address, the SMTP server configuration must also be changed in the [REMCS Environment Setup] window.

In addition, before REMCS initialization, the routing must be set with this command.

• Privilege: Users with the Admin or CE privilege

(1) Synopsis

```
set remcs <ip address> <subnet mask> <gateway address> <smtp address> <ip address> IP address assigned to the REMCS port <subnet mask> Subnet mask of the IP address <gateway address> gateway Address <smtp address> Mail server used for REMCS notification
```

(2) Options

None

(3) Examples

None

4.3 Display Commands

The following commands are used to display information:

- show access_control
- show date
- show timezone
- show gateway
- show https
- show https_port
- show ip
- show hostname
- show ssh
- show ssh port
- show telnet
- show telnet port
- show network
- show remcs
- who
- help

This section describes how to use these commands.

4.3.1 show access_control

This command displays the current access control settings.

• Privilege: Users with the Admin privilege

(1) Synopsis

show access_control

(2) Options

None

(3) Examples

None

4-16 C122-E003-02EN

4.3.2 show date

This command displays the current date and time.

• Privilege: Any user

(1) Synopsis

show date

(2) Options

None

(3) Examples

```
# show date
2004-08-31 20:40:17
```

4.3.3 show timezone

This command displays the time zone.

• Privilege: Any user

(1) Synopsis

```
show timezone
```

(2) Options

None

(3) Examples

```
# show timezone
Timezone is set to "Asia/Tokyo"
```

4.3.4 show gateway

This command displays the default gateway IP address that is set for the management LAN interface.

• Privilege: Users with the Admin privilege

(1) Synopsis

show gateway

(2) Options

None

(3) Examples

```
# show gateway
Gateway Address: 10.1.2.1
```

4.3.5 show http

This command displays the current HTTP server status (enabled or disabled).

• Privilege: Any user

(1) Synopsis

```
show http
```

(2) Options

None

(3) Examples

```
# show http
HTTP: disabled
```

4-18 C122-E003-02EN

4.3.6 show http_port

This command displays the port number of the port currently connected to an HTTP session.

• Privilege: Any user

(1) Synopsis

show http_port

(2) Options

None

(3) Examples

```
# show http_port
HTTP Port Number:8081
```

4.3.7 show https

This command displays the current HTTP server status (enabled or disabled).

• Privilege: Any user

(1) Synopsis

```
show https
```

(2) Options

None

(3) Examples

```
# show https
HTTPS: disabled
```

4.3.8 show https_port

This command displays the current HTTPS server status (enabled on disabled).

• Privilege: Any user

(1) Synopsis

```
show https_port
```

(2) Options

None

(3) Examples

```
# show https_port
HTTPS Port Number:432
```

4.3.9 show ip

This command displays the IP address and the net mask that are set for the management LAN interface.

• Privilege: Any user

(1) Synopsis

```
show ip
```

(2) Options

None

(3) Examples

```
# show ip
IP Address : 10.1.2.124
Netmask : 255.255.255.0
```

4-20 C122-E003-02EN

4.3.10 show hostname

This command displays the MMB host name.

• Privilege: Any user

(1) Synopsis

show hostname

(2) Options

None

(3) Examples

```
# show hostname
    xxxxx.fujitsu.com
```

4.3.11 show ssh

This command displays the current SSH server status (enabled or disabled).

• Privilege: Any user

(1) Synopsis

```
show ssh
```

(2) Options

None

(3) Examples

```
# show ssh
SSH: disabled
```

4.3.12 show ssh_port

This command displays the port number of the port currently connected to an SSH session.

• Privilege: Any user

(1) Synopsis

show ssh_port

(2) Options

None

(3) Examples

```
# show ssh_port
SSH Port Number:22
```

4.3.13 show telnet

This command displays the current Telnet server status (enabled or disabled).

• Privilege: Any user

(1) Synopsis

```
show telnet
```

(2) Options

None

(3) Examples

```
# show telnet
Telnet: disabled
```

4-22 C122-E003-02EN

4.3.14 show telnet_port

This command displays the port number of the port currently connected to a Telnet session.

• Privilege: Any user

(1) Synopsis

```
show telnet_port
```

(2) Options

None

(3) Examples

```
# show telnet_port
Telnet Port Number:23
```

4.3.15 show network

This command displays the following items in the network configuration information that is set for the management LAN interface:

- HOST name
- IP Address
- Netmask
- Gateway Address
- MAC Address
- HTTP status
- HTTP Port Number
- HTTPS status
- HTTPS Port Number
- Telnet status
- Telnet Port Number
- SSH status
- SSH Port Number
- Privilege: Any user

show network

(2) Options

None

(3) Examples

# show network	
HOST name:	xxxxx.fujitsu.com
IP Address:	10.1.2.124
Netmask:	255.255.255.0
Gateway Address:	10.1.2.1
MAC Address:	00:AA:00:12:34:55
HTTP:	disabled
HTTP Port Number:	8081
HTTPS:	disabled
HTTPS Port Number:	432
Telnet:	disabled
Telnet Port Number:	23
SSH:	enabled
SSH Port Number:	22

4.3.16 show remcs

This command displays routing configuration information for the REMCS port of the management LAN.

• Privilege: Users with the Admin or CE privilege

(1) Synopsis

show Rremcs

(2) Options

None

4-24 C122-E003-02EN

(3) Examples

```
#show remcs
IP Address 192.162.1.10
Net Mask 255.255.255.0
Gateway 192.162.1.1
SMTP 10.19.128.90
```

4.3.17 who

This command displays the following information about users who are logged in to the MMB:

- Login name
- Login time of a user
- Privilege: Any user

(1) Synopsis

who

(2) Options

None

(3) Examples

None

4.3.18 help

This command displays help information on the available commands.

• Privilege: Any user

(1) Synopsis

help

(2) Options

None

(3) Examples

None

4-26 C122-E003-02EN

4.4 Update Commands

The following commands are used to update firmware:

- update MMB
- update BMC
- update EFI
- update SAL

This section describes how to use these commands.

4.4.1 update MMB

This command downloads an MMB firmware file from the specified URL and updates MMB firmware.

The input format for the URL is as follows:

http://host/path/file

ftp://host/path/file

A URL cannot be accessed through a proxy server.

Note: The MMB must be rebooted when MMB firmware is updated. To prevent an interruption in MMB service during an update, Fujitsu recommends updating the standby MMB first, making it the active MMB, and then updating the other MMB.

• Privilege: Users with the Admin privilege or CE privilege

(1) Synopsis

```
update MMB [0 | 1 | both] <url> [noverify] {quiet}
```

(2) Options

0: Updates MMB firmware on MMB#0.

1: Updates MMB firmware on MMB#1.

both: Updates MMB firmware on both MMB#0 and #1.

noverify: Disables the verify check.

quiet: Updates the firmware without interactive operation involving the user.

(3) Examples

```
# update MMB 0 http://host/path/mmbfirm001
Downloading an MMB firmware file......

Current Firmware Version of MMB#0:XXXXX
New Firmware Version: YYYYY
Are you sure to continue MMB Firmware Update? [Y|N]: Y
Updating MMB Firmware......

The Firmware update of MMB#0 is successfully completed.
#
```

4.4.2 update BMC

This command downloads a BMC firmware file from the specified URL and updates BMC firmware.

The input format for the URL is as follows:

http://host/path/file ftp://host/path/file

A URL cannot be accessed through a proxy server.

Note: The BMC must be rebooted when BMC firmware is updated. BMC service is interrupted when the BMC is rebooted. Therefore, Fujitsu recommends shutting down the partition to which the BMC belongs before updating BMC firmware.

• Privilege: Users with the Admin privilege or CE privilege

(1) Synopsis

```
update BMC [all | BMM <BMM#> {[,| -] <BMM#>} | partition
<partition#> {[,| -]
<partition#>}] <url> {noverify} {quiet}
```

(2) Options

all: Updates BMC firmware on all BMM boards in the cabinet.

BMM: Updates the BMC firmware on the specified BMM board.

Specify two digits in a BMM number, consisting of an IO_Unit# (0 to 7) and a BMM# (0 or 1). For example, IO Unit#3 BMM#1 is represented as 31.

4-28 C122-E003-02EN

Partition:Updates BMC firmware on the BMM board contained in the specified partition.

noverify: Disables the verify check.

quiet: Updates the firmware without interactive operation involving the user.

(3) Examples

```
# update BMC BMM 00 http://host/path/bmcfirm001
Downloading a BMC firmware file......

Current Firmware Version of IO_Unit#3-BMM#1: XXXXX
New Firmware Version: YYYYY

Are you sure to continue BMC Firmware Update? [Y|N]: Y

Updating BMC Firmware...........

The Firmware update of IO_Unit#3-BMM#1 is successfully completed.
#
```

4.4.3 update EFI

This command downloads an EFI firmware file from the specified URL and updates EFI firmware.

The input format for the URL is as follows:

http://host/path/file ftp://host/path/file

A URL cannot be accessed through a proxy server.

Note: The partition containing the EFI must be rebooted when EFI firmware is updated. Therefore, shut down the partition to which the EFI belongs before updating EFI firmware.

• Privilege: Users with the Admin privilege or CE privilege

(1) Synopsis

```
update EFI [all | BMM <BMM#> {[, | -] <BMM#>} | partition
<partition#> {[, | -]
<partition#>}] <url> {noverify} {quiet}
```

(2) Options

all: Updates EFI firmware on all BMM boards in the cabinet.

BMM: Updates EFI firmware on the specified BMM board.

Specify two digits in a BMM number, consisting of an IO_Unit# (0 to 7) and a BMM# (0 or 1). For example, IO Unit#3 BMM#1 is represented as 31.

Partition:Updates EFI firmware on the BMM board contained in the specified partition.

noverify: Disables the verify check.

quiet: Updates the firmware without interactive operation involving the user.

(3) Examples

```
# update EFI BMM 00 http://host/path/bmcfirm001
Downloading a BMC firmware file......

Current Firmware Version of IO_Unit#3-BMM#1: XXXXX
New Firmware Version: YYYYY

Are you sure to continue EFI Firmware Update? [Y|N]: Y
Updating EFI Firmware..........

The Firmware update of IO_Unit#3-BMM#1 is successfully completed.
#
```

4.4.4 update SAL

This command downloads a PAL/SAL firmware file from the specified URL and updates PAL/SAL firmware.

The input format for the URL is as follows:

http://host/path/file ftp://host/path/file

A URL cannot be accessed through a proxy server.

Note: The partition containing the PAL/SAL must be rebooted when PAL/SAL firmware is updated. Therefore, shut down the partition to which the PAL/SAL belongs before updating PAL/SAL firmware.

• Privilege: Users with the Admin privilege or CE privilege

4-30 C122-E003-02EN

```
update SAL [all | sb <SB#> {[, | -] <SB#>} | partition <partition#> {[, | -] <partition#>}] <url> {noverify} {quiet}
```

(2) Options

all: Updates PAL/SAL firmware on all SBs in the cabinet.

sb: Updates PAL/SAL firmware on the specified SB.

Specify two characters in an SB number, consisting of an SB# (0 to 7) and the respective letter for the A or B side. For example, SB#3 B-side is represented as 3b.

Partition:Updates PAL/SAL firmware on the SB contained in the specified partition. noverify:Disables the verify check.

quiet: Updates the firmware without interactive operation involving the user.

(3) Examples

```
# update SAL sb 0a http://host/path/bmcfirm001
Downloading a PAL/SAL firmware file......

Current Firmware Version of SB#0-A: XXXXX
New Firmware Version: YYYYY

Are you sure to continue PAL/SAL Firmware Update? [Y|N]: Y
Updating PAL/SAL Firmware..........

The Firmware update of SB#0-A is successfully completed.
#
```

4.5 Other Commands

In addition to the commands for specifying, displaying, and updating information, the following commands are available:

- conect GSWB
- exit
- passwd
- ping

This section describes how to use these commands.

4.5.1 connect GSWB

This command establishes a connection to the specified GSWB.

CLI input is enabled for the GSWB when a connection is established.

For details on CLI operations concerning the GSWB, see Chapter 8, "CLI Operations," in part 4, "GSWB."

• Privilege: Any user

(1) Synopsis

connect GSWB [0 | 1]

(2) Options

0: Connects to GSWB#0.

1: Connects to GSWB#1.

(3) Examples

None

4-32 C122-E003-02EN

4.5.2 exit

This command logs you out of the system.

• Privilege: Any user

(1) Synopsis

exit

(2) Options

None

(3) Examples

None

4.5.3 passwd

This command changes the password of a specified user.

Users granted the Admin privilege can change the passwords of all users, whereas users without the Admin privilege can only change their own passwords.

If USER is not specified, the command changes the password of the currently loggedin user.

The password change procedure is as follows:

- 1 Enter the current password when prompted.

 If the entered password is correct, processing continues. If not, the command rejects the password change requests and exits.
- 2 Enter the new password when prompted.
 The entered new password is checked to ensure that it is sufficiently complex.
 If no problem is found, processing continues. If this check fails, the command rejects the password change request.
- 3 Reenter the new password for confirmation when prompted. If the password entered now matches the password entered previously, the new password becomes effective. If not, the command rejects the password change request.
- Privilege: Any user

```
passwd [USER]
```

(2) Options

USER: Specifies the user name of the user whose password is to be changed.

(3) Examples

```
# passwd
Current password: *********
New password: **********
Re-enter new password: ***********
Password changed.
```

4.5.4 ping

This command sends an ICMP echo message to the destination specified in <IP address> or <server name>.

• Privilege: Any user

(1) Synopsis

```
ping [-c count] <IP address>|<server name>
```

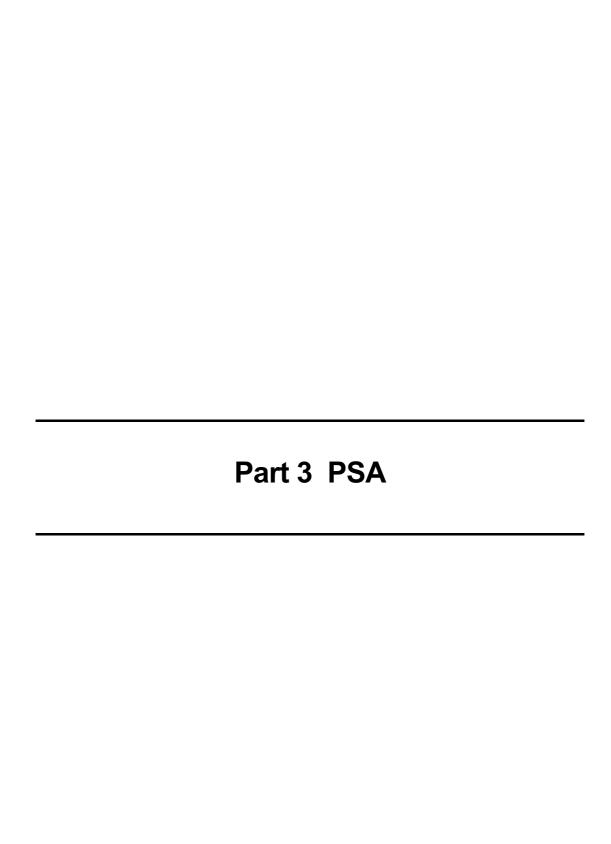
(2) Options

-c count: Ends the processing after sending a specified number of packets.

(3) Examples

None

4-34 C122-E003-02EN



CHAPTER 5 Web-UI Operations

The PSA is a system management application that runs on the OS for each partition on PRIMEQUEST series machines. This chapter describes use of MMB Web-UI for PSA operations by providing a list of menus and describing screens and the operations.

Clicking [Partition] \rightarrow [Partition #x] \rightarrow [PSA] menu from the MMB Web-UI navigation bar displays the initial screen of the [Partition Information] window.

Under any of the following conditions, however, the [Partition Information] window is not displayed and the content area displays a message indicating that the partition or PSA is not operating:

- PSA is not installed in the partition.
- The partition OS is not running.
- PSA is not running.
- A management LAN setting is not correct.
- Component status display and background color

The PSA window displays the status of components belonging to the partition. The component status is indicated by text and displayed against a specific background color for easy identification, as shown in the following table.

Table 5.1 Component status and background colors

Status	Background color	Status	Background color
OK	White	Warning	Yellow
Not-present	Gray	Degraded	Yellow
Error	Red	Unknown	White

Display for items whose values cannot be obtained

The PSA window displays "n.a." for any item whose value is unknown.

• [Refresh] button

In operation under PSA, the [Refresh] button is displayed in windows with changes. Click this button to reflect the new setting values to the window. When you select [Enable] in the [Refresh Rate] window for the MMB, no automatic refresh will become effective. New information is collected at regular intervals (30 minutes) to ensure that up-to-date values can be displayed. Therefore, the latest information may not be displayed depending on the time the button is clicked. Items on which up-to-date information is retrieved when they are displayed are noted in each description of the window.

Note: If you change the time zone when PSA is starting, PSA's internal local time is not updated. To update the local time, you need to restart PSA.



Malfunction

In operation under PSA, the [Refresh] button is displayed in windows with variable data, but this excludes windows for process monitoring, system files, and software inventory. When you select [Enable] in the [Refresh Rate] window for the MMB, no automatic refresh will become effective. New information is collected at regular intervals (30 minutes) to ensure that up-to-date values can be displayed. Therefore, the latest information may not be displayed depending on the time the button is clicked. Items on which up-to-date information is retrieved when they are displayed are noted in each description of the window.

5-2 C122-E003-02EN

5.1 List of Menus in the Web-UI Window

This section provides a list of PSA menus (the section enclosed by double lines in the following table) for Web-UI. The meanings of the symbols used in the Supported OS column are as follows:

Supported OS

- Y: Supported
- N: Not supported
- RW: The user can read and write in the window concerned (called a setting privilege user, in this document).
- RO: The user can only read in the window concerned (called a read privilege user, in this document).
- N/A: The window and submenu concerned are not displayed.

Table 5.2 Menus

Nav	Partition Submenus			A submenus	Supported OS Privilege						
Navigation bar	Level 1	Level 2	Level 1	Level 2	Linux	Windows	Administrator	Operator	User	CE	Remarks
Partition											
	: Partition#	0									Menu that is displayed if at least one board belongs to the partition
		PSA									
Partition Information					Y	Y	RO	RO	RO	RO	Displays a partition outline and OS information.
CPUs					Y	Y	RO	RO	RO	RO	Displays CPU information in a list.
			DIMMs		Y	Y	RO	RO	RO	RO	Displays DIMM information in a list.
			PCI Devic	ees	Y	Y	RW	RW	RO	RW	Displays PCI device information. * The [Ethernet Controller] screen displays items that vary from one OS to another.
	Network										
				Network Interfaces	Y	Y	RO	RO	RO	RO	Displays the network status. * The displayed items vary from one OS to another.
Network Routing					Y	N	RO	RO	RO	RO	Displays the routing status.
Disk Partitions					Y	N	RO	RO	RO	RO	Displays disk partition information.
			Process Li		Y	N	RW	RW	RO	N/A	Displays process information in a list and sends a signal to the specified process.
		•	System Fi	Y	N	RO	RO	RO	N/A	Displays system files.	

Nav	Partition PSA submenus submenus		Supported OS		Privilege						
Navigation bar	Level 1	Level 2	Level 1	Level 2	Linux	Windows	Administrator	Operator	User	CE	Remarks
			Inventory								
				Hardware Inventory	Y	Y	RO	RO	RO	RO	Displays a hardware inventory list.
				Software Inventory	Y	N	RO	RO	RO	RO	Displays the OS version, and displays and downloads the RPM package information.
			Agent Log	3	Y	Y	RO	RO	RO	RO	Displays an agent log list.
			SEL		Y	Y	RO	RO	RO	RO	Downloads a system event log (binary format).
	Export List				Y	Y	RO	RO	RO	RO	Saves the information stored by PSA, in CSV format.
Setup											
Watchdog					Y	Y	RW	RW	RO	RO	Sets up Watchdog monitoring.
S.M.A.R.T.				Y	Y	RW	RW	RO	RO	Sets up S.M.A.R.T. monitoring.	
Partition#1						Same as	Partitio	n#0			
	:										

5-4 C122-E003-02EN

5.2 Partition Information Window

The [Partition Information] window displays a partition outline and OS information.

Remarks: This window displays items that vary depending on the OS installed in the partition.

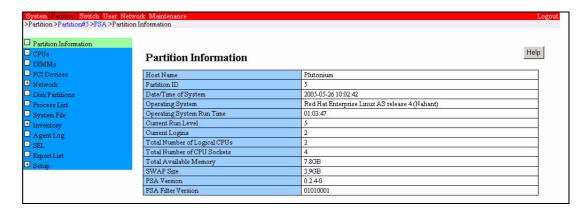


Figure 5.1 [Partition Information] window (Linux)

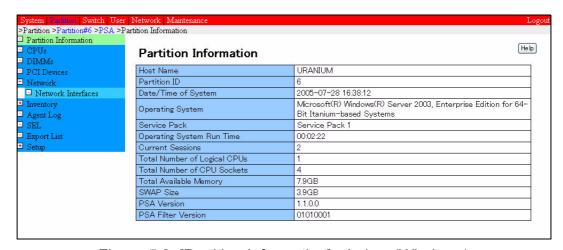


Figure 5.2 [Partition Information] window (Windows)

Table 5.3 Displayed items in the [Partition Information] window

Item	Description
Host Name	Host name
Partition ID	Partition ID
Date/Time of System	System time in the partition (local time), as follows:
	yyyy-MM-dd HH:mm:ss
	* When the window opens, up-to-date information is retrieved.
Operating System	OS name and version
Service Pack	Displays the OS service pack.
* Windows version only	
Operating System Run	OS operating time
Time	* When the window opens, up-to-date information is retrieved.
Current Run Level	OS run level, ranging from Run Level 1 to 5
* Only Linux supported	* The latest information will be obtained when the window opens.
Current Logins	Number of currently logged-in users
* Only Linux supported	* When the window opens, up-to-date information is retrieved.
Current Sessions	Displays the number of current sessions.
* Only Windows	* The latest information will be obtained when the window opens.
supported	
Total Number of Logical	Number of logical CPUs recognized by the OS
CPUs	
Total Number of CPU	Number of physical CPU sockets
Sockets	
Total Available Memory	If the SWAP size in the partition is up to 1023 MB, it is displayed
	in MB units. If it is at least 1024 MB, it is displayed in GB units
	(rounded down to one decimal place).
SWAP Size	If the SWAP size in the partition is up to 1023 MB, it is displayed
	in MB units. If it is at least 1024 MB, it is displayed in GB units
	(rounded down to one decimal place).
PSA Version	PSA version
PSA Filter Version	Version of the filter definition for the PSA hardware error
	monitoring function

 $[Partition] \rightarrow [Partition \ \#x] \rightarrow [PSA] \rightarrow [Partition \ Information]$

(2) GUI operation

None

5-6 C122-E003-02EN

5.3 CPUs Window

The [CPUs] window displays in list form information on the CPUs belonging to the partition.

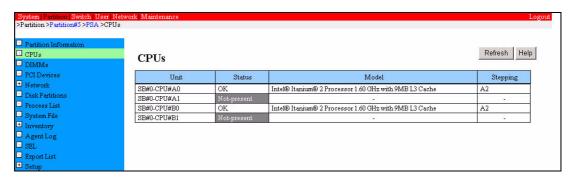


Figure 5.3 [CPUs] window

Table 5.4 Displayed items in the [CPUs] window

Item	Description
Unit	CPU identification names.
Status	Integrated status of the CPU hardware status, installation status, and
	predicted fault status:
	OK: Operating normally
	Not-present: Not installed
	Warning: Warning status (A problem may occur.)
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	• Unknown: Unknown
Model	CPU model.
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.
Stepping	Displays CPU stepping.
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [CPUs]$

(2) GUI operation

None

5.4 DIMMs Window

The [DIMMs] window displays in list form information on the DIMMs belonging to the partition.

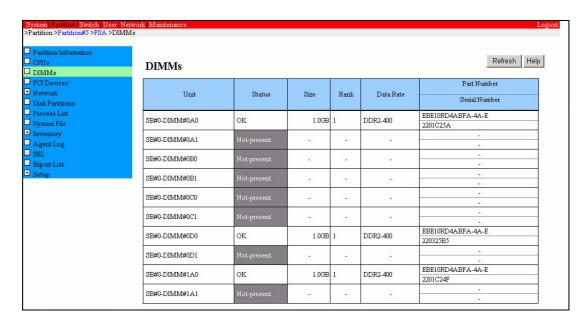


Figure 5.4 [DIMMs] window

Table 5.5 Displayed items in the [DIMMs] window

Item	Description
Unit	DIMM identification names.
Status	Integrated status of the DIMM hardware status, installation status,
	and predicted fault status:
	OK: Normally operating.
	Not-present: Not installed.
	Warning: Warning status. (A problem may occur.)
	Degraded: Component failure (The faulty component can be
	isolated to continue operation.)
	Unknown: Unknown
Size	If the DIMM size is up to 1023 MB, it is displayed in MB units. If it
	is at least 1024 MB, it is displayed in GB units (rounded down to
	one decimal place).
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.
Rank	DIMM rank number (1 or 2)
	If [Status] is [Not-present] (not installed), a hyphen (-) is displayed.

5-8 C122-E003-02EN

Item	Description
Data Rate	DIMM data rate.
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.
Part Number	DIMM part number.
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.
Serial Number	DIMM serial number.
	If [Status] is "Not-present" (not installed), a hyphen (-) is displayed.

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [DIMMs]$

(2) GUI operation

None

5.5 PCI Devices Window

The [PCI Devices] window displays information about connected PCI devices in each partition.

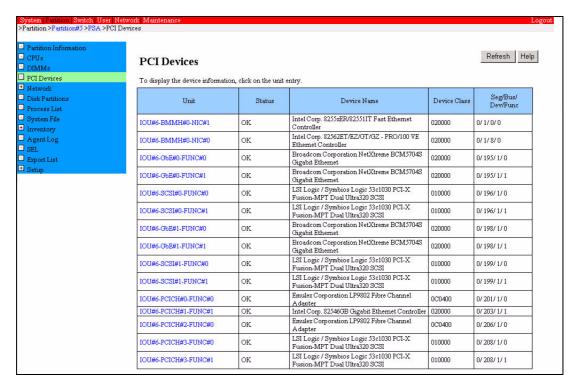


Figure 5.5 [PCI Devices] window

The PCI Devices window displays a list of PCI devices in a partition. Clicking a [Unit] item displays details about the corresponding device. Information is displayed for each PCI card function. If the PCI card is a multi-function PCI card, multiple lines of device information are displayed for a single unit.

5-10 C122-E003-02EN

Item	Description
Unit	PCI device ID.
Status	Integrated status of the hardware status of the PCI device and
	status of individual subordinate devices connected to it (and this
	includes the predicted fault status):
	OK: Normally operating.
	• Error: Serious problem such as a hardware failure
	• Warning: Warning status (A problem may occur.)
	• Unknown: Unknown
Device Name	Device name that combines a vendor name and device name
	In Windows: "SCSI Controllers" and other such names are
	displayed for newly added devices after a hardware configuration
	change. After thirty minutes or so, however, these names are
	changed to device names recognized by the OS.
Device Class	Device class ID (in hexadecimal)
Seg/Bus/Dev/Func	The following numbers:
	Segment number
	Bus number
	Device number
	• Function number

Table 5.6 Displayed items in the [PCI Devices] window

Table 5.7 Buttons in the [PCI Devices] window

Button	Description
Each box containing a	Click the box containing a [Unit] item to display the details
[Unit] item	window.

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [PCI Devices]$

(2) GUI operation

- 1 Click a [Unit] item.
- If DeviceClass=020000, the [Ethernet controller] window is displayed.
- If DeviceClass=010000 or 0C0400, the [Storage Controller] window is displayed.
- 2 Click the [Return] button in the displayed window. The [PCI Devices] window is displayed again.

5.5.1 Ethernet Controller window

If a [Device Class] item in the [PCI Devices] window is "020000" (Ethernet controller), the [Ethernet Controller] window displays Ethernet controller information.

A setting privilege user can clear the status by clicking the [Status Clear] button.

Remarks: This window displays items that vary depending on the OS installed in the partition.

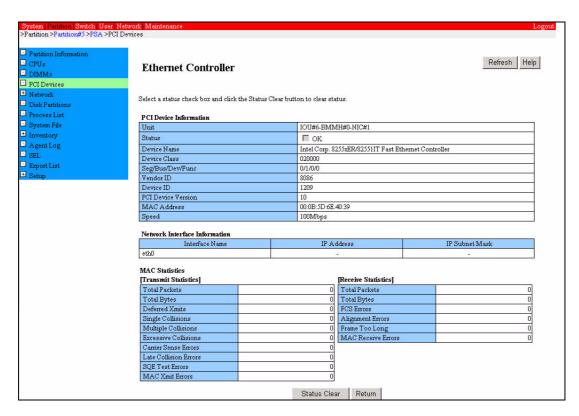


Figure 5.6 [Ethernet Controller] window (Linux)

5-12 C122-E003-02EN

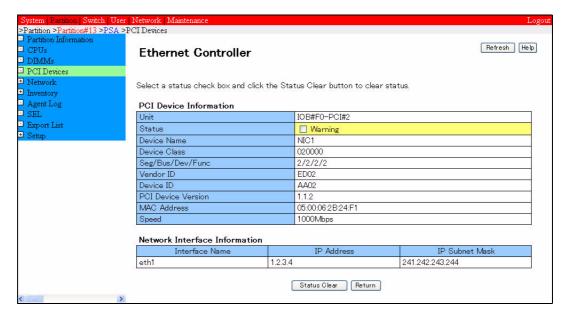


Figure 5.7 [Ethernet Controller] window (Windows)

Table 5.8 Displayed and setting items in the [Ethernet Controller] window

Item	Description
PCI Device Information	
Unit	Ethernet controller identification name
Status	Ethernet controller status:
	OK: Operating normally
	Error: Serious problem such as a hardware failure
	Warning: Warning status (A problem may occur.)
	Unknown: Unknown
	Check the [Error] or [Warning] status check box to clear the status.
	Note: When the check box is checked, the status is not cleared
	until the [Status Clear] button is clicked.
Device Name	Device name that combines a vendor name and device name
	In Windows: "SCSI Controllers" and other such names are
	displayed for newly added devices after a hardware configuration
	change. After thirty minutes or so, however, these names are
	changed to device names recognized by the OS.
Device Class	Device class ID (in hexadecimal)
Seg/Bus/Dev/Func	The following numbers:
	Segment number
	Bus number
	Device number
	Function number
Vendor ID	Vendor ID (in hexadecimal)
Device ID	Device ID (in hexadecimal)
PCI Device Version	PCI device version number

Item	Description
MAC Address	MAC address
	* Windows:
	• A hyphen (-) is displayed if the network of the relevant interface
	is in the Down status and is not teamed.
	• The window may display "n.a." if it is opened while PSA's
	internal information is being updated. The use of the Refresh
	button refreshes the window to display the correct information.
	• The window displays "n.a." if the driver is not loaded.
Speed	Network speed
	* Linux
	• Correct values are not displayed if the pertinent interface is not
	linked up.
	* Windows
	• A hyphen (-) is displayed if the network of the pertinent
	interface is in the Down status.
	• The window may display "n.a." if it is opened while PSA's
	internal information is being updated. The use of the Refresh
	button refreshes the window to display the correct information.
	• The window displays "n.a." if the driver is not loaded.

Network Interface Information

7 . 0 37	
Interface Name	Names of all interfaces allocated to the NIC (and this includes
	virtual IPs)
IP Address	The IP address of each interface is displayed.
	* Linux
	A hyphen (-) is displayed if the IP address is not initialized or if
	the NIC is under GLS control.
	* Windows
	A hyphen (-) is displayed if the IP address is not initialized or if
	the network of the pertinent interface is in the Down status.
IP Subnet Mask	The subnet mask of each interface is displayed.
	* Linux
	A hyphen (-) is displayed if the IP address is not initialized or
	the NIC is under GLS control.
	* Windows
	A hyphen (-) is displayed if the IP address is not initialized or if
	the network of the pertinent interface is in the Down status.

MAC Statistics (Transmit Statistics)

- * Only Linux supported
- * The latest information will be obtained when the window opens.
- * When the window opens, up-to-date information is retrieved.

5-14 C122-E003-02EN

Item	Description
Total Packets	Number of packets passed using IP for transmission with a
	transport layer protocol (e.g., TCP or UDP). This does not include
	packets that were only transferred.
Total Bytes	Number of transmitted bytes
Defferred Xmite	Number of packets that waited in the first transmission attempt
	because the line was busy. Network congestion causes
	transmission delays.
	Currently, 0 is displayed for this item as a fixed setting.
Single Collisions	Number of packets that were successfully transmitted after exactly
	one collision. [Single Collisions] indicates network congestion.
	Currently, 0 is displayed for this item as a fixed setting.
Multiple Collisions	Number of packets that were successfully transmitted after several
	collisions. This does not include the packets already recorded in
	[Single Collisions]. [Multiple Collisions] indicates network
	congestion.
	Currently, 0 is displayed for this item as a fixed setting.
Excessive Collisions	Number of packets whose transmission failed because the
	maximum number of collisions was exceeded. The cause is
	extremely serious network congestion.
Carrier Sense Errors	Number of times that the carrier sense conditions were violated
Late Collision Errors	Number of packets for which no collision was detected until data
	exceeding 512 bits was transmitted. This indicates that the
	transmission route is too long and that the subsequent signal
	propagation time is too long, resulting in an overlap.
	Currently, 0 is displayed for this item as a fixed setting.
SQE Test Errors	Number of times that an SQE test error occurs
MAC Xmit Errors	Number of packets that could not be properly transmitted because
	of an internal error in the MAC layer. This does not include the
	packets already recorded in [Late Collision Errors], [Excessive
	Collisions], and [Carrier Sense Errors].

MAC Statistics (Receive Statistics)

- * Only Linux supported
- * The latest information will be obtained when the window opens.
- * When the window opens, up-to-date information is retrieved.

Total Packets	Total number of IP datagrams received from all other stations. This includes the number of error datagrams.
Total Bytes	Number of bytes received
FCS Errors	Number of packets in which an FCS test detected an error. The
	cause is low transmission quality.

Item	Description
Alignment Errors	Number of packets received by the selected interface and found to
	have an incorrect length because the number of bytes is not an
	integer. The cause is low transmission quality.
	Currently, 0 is displayed for this item as a fixed setting.
Frame Too Long	Number of packets received by the selected interface and found to
	be longer than the maximum packet length (1,518 bytes)
MAC Receive Errors	Number of packets that could not be properly received because of
	an internal error in the MAC layer

Table 5.9 Buttons in the [Ethernet Controller] window

Button	Description
Status Clear	The [Status Clear] button is displayed only for a setting privilege
	user.
	Check the [Status] check box in [PCI Device Information], click
	the [Status Clear] button, and the [Confirm Settings] dialog box
	opens. Click the [OK] button in the [Confirm Settings] dialog box
	to clear the status of the Ethernet controller.
	If the notification suppression function is active to suppress mail/
	REMCS/SNMPtrap notification, this button deactivates the
	notification suppression function.
Return	Click the [Return] button to return to the [PCI Devices] window.

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [PCI Devices] \rightarrow [Unit]$

(2) GUI operation

- · Clearing the status of the Ethernet controller
 - 1 Check the [Status] check box, and click the [Status Clear] button. The [Confirm Settings] dialog box opens.
 - 2 Click the [OK] button in the [Confirm Settings] dialog box. The status of the Ethernet controller is cleared.
 - 3 Click the [Return] button.
 The [PCI Devices] window is displayed again.
- · Leaving the status of the Ethernet controller as is
 - Click the [Return] button.The [PCI Devices] window is displayed again.

5-16 C122-E003-02EN

5.5.2 Storage Controller window

If a [Device Class] item in the [PCI Devices] window is "010000" (SCSI storage controller) or "0c0400" (Fibre Channel), the [Storage Controller] window displays storage controller information.

A setting privilege user can clear the status by clicking the [Status Clear] button.

If devices are added to or removed from the group of devices connected to the storage controller, a maximum of three minutes will be required to refresh the display to reflect the change.

Notes:

- Disks in the ETERNUS multipath driver environment are displayed under PCI devices that compose a multipath configuration. However, note that accurate values for [Status], [Serial No.], and [Disk Capacity] are displayed only for a disk under one of those PCI devices (usually, the one with the smallest bus number).
- If a disk under GDS control is added or removed during OS operation, the values displayed for [Device Type] and [Disk Capacity] are not updated. To update them, PSA must be restarted.
- If no device is connected to the storage controller, only the title row is displayed.

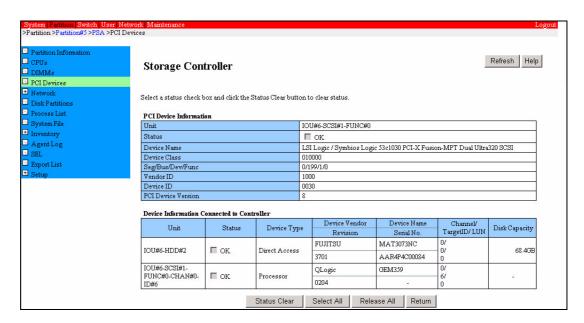


Figure 5.8 [Storage controller] window

Table 5.10 Displayed and setting items in the [Storage Controller] window

Item	Description
PCI Device Information	
Unit	SCSI storage controller identification name
Status	Hardware status of the storage controller (but not including the
	status of any subordinate device connected to it). This may differ
	from the status displayed on the PCI device list.
	OK: Operating normally
	Error: Serious problem such as a hardware failure
	Warning: Warning status (A problem may occur.)
	• Unknown: Unknown
	Check the [Error] or [Warning] status check box to clear the status.
	Additional note: Check the check box and then click the [Status
	Clear] button to clear the status.
Device Name	Device name that combines a vendor name and device name
	In Windows: "SCSI Controllers" and other such names are
	displayed for newly added devices after a hardware configuration
	change. After thirty minutes or so, however, these names are
	changed to device names recognized by the OS.
Device Class	Device class ID (in hexadecimal)
Seg/Bus/Dev/Func	The following numbers:
	Segment number
	Bus number
	Device number
	Function number
Vendor ID	Vendor ID (in hexadecimal)
Device ID	Device ID (in hexadecimal)
PCI Device Version	PCI device version number (in hexadecimal)
Device Information Con	nected to Controller

Unit	Storage controller identification name
Status	Integrated status of the hardware status and predicted fault status
	of individual devices connected to the storage controller:
	OK: Operating normally
	• Error: Serious problem such as a hardware failure
	• Warning: Warning status (A problem may occur. This includes
	S.M.A.R.T.)
	• Unknown: Unknown
	Check the check box to clear the status.
	Additional note: Check the check box and then click the [Status
	Clear] button to clear the status.

5-18 C122-E003-02EN

Item	Description
Device Type	Device type:
	Direct Access
	Sequential Access
	• Printer
	Processor
	• WORM
	• CD-ROM
	Scanner
	Optical Device
	Medium Changer
	Communications
	Unknown
	Enclosure
	• Direct Access (GDS)
	* Linux
	The device type is displayed as "n.a." for any device other than
	the above.
	* Windows
	The device type is displayed as "Unknown" for any device other
	than the above (such as RBC/CardReader/Bridge/Other).
Device Vendor	Device vendor
Revision	Device revision number
Device Name	Device name
Serial No	Device serial number. If the device is not a disk, a hyphen (-) is
	displayed.
Channel/TargetID/LUN	SCSI channel, SCSI target ID, and SCSI logical unit number of the
	device
Disk Capacity	If the device is a disk, its capacity is displayed in MB units if the
	capacity is up to 1023 MB, or in GB units (rounded down to one
	decimal place) if the capacity is at least 1024 MB. If the device is
	not a disk or it is a GDS, a hyphen (-) is displayed. Since disk
	capacities are displayed on the assumption that 1 GB = 1024 MB =
	1024 x 1024 KB, they are slightly smaller than on catalogs.

Button	Description
Status Clear	The [Status Clear] button is displayed only for a setting privilege
	user.
	Check the [Status] check box in [PCI Device Information] or
	[Device Information Connected to Controller], click the [Status
	Clear] button, and the [Confirm Settings] dialog box opens. Click
	the [OK] button in the [Confirm Settings] dialog box to clear the
	hardware status of the storage controller or a device connected to
	the storage controller.
	If the notification suppression function is active to suppress mail/
	REMCS/SNMPtrap notification, this button deactivates the
	notification suppression function.
Select All	The [All Select] button is displayed only for a setting privilege
	user.
	Click the [All Select] button to check all check boxes.
Release All	The [All Release] button is displayed only for a setting privilege
	user.
	Click the [All Release] button to uncheck all check boxes.
Return	Click the [Return] button to return to the [PCI Devices] window.

Table 5.11 Buttons in the [Storage Controller] window

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [PCI Devices] \rightarrow [Unit]$

(2) GUI operation

- Clearing the hardware status of the storage controller
 - 1 Check the [Status] check box in [PCI Device Information] (see the Note below), and click the [Status Clear] button.
 The [Confirm Settings] dialog box opens.
 - 2 Click the [OK] button in the [Confirm Settings] dialog box. The hardware status of the storage controller is cleared.
 - 3 Click the [Return] button.
 The [PCI Devices] window is displayed again.
- Clearing the hardware status of a device connected to the storage controller
 - 1 Check the [Status] check box in [Device Information Connected to Controller] (see the Note below), and click the [Status Clear] button. The [Confirm Settings] dialog box opens.

5-20 C122-E003-02EN

- 2 Click the [OK] button in the [Confirm Settings] dialog box.

 The hardware status of the device connected to the storage controller is cleared.
- 3 Click the [Return] button.
 The [PCI Devices] window is displayed again.
- Not clearing the storage controller status
 - Click the [Return] button.
 The [PCI Devices] window is displayed again.

Remarks:

- 1 Clicking the [Select All] button selects all check boxes, and clicking the [Release All] button clears all check boxes.
- 2 Up to 500 status items can be cleared at a time. If the [Status Clear] button is clicked when more than 500 status items are selected, a dialog box opens to ask for confirmation to clear the first 500 status items.

5.6 Network Menu

The [Network] menu displays the network status and routing status in the partition.

This menu has the following windows:

- [Network Interfaces] window
- [Network Routings] window

This section describes these windows and operations in them.

5.6.1 Network Interfaces window

The [Network Interfaces] window displays the network status in the partition.

Remarks: This window displays items that vary depending on the OS installed in the partition.

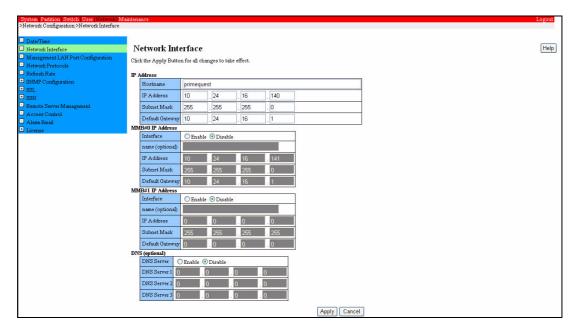


Figure 5.9 [Network Interfaces] window (Linux)

5-22 C122-E003-02EN

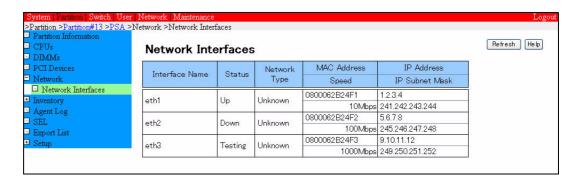


Figure 5.10 [Network Interfaces] window (Windows)

Table 5.12 Displayed items in the [Network Interfaces] window

Item	Description
Interface Name	Interface name
Status	LAN activation status:
	• Up: Active
	• Down: Not active
Network Type	Network type (high-level protocol type handled by the ARP
	protocol):
	• Ether: Ethernet
	• Loopback: Loopback (loopback interface)
	• Unknown: Unknown
MAC Address	Physical address.
	* Linux
	• A hyphen (-) is displayed if [Interface Name] is "lo."
	• A hyphen (-) is displayed if the bonding module is loaded, but is
	not configured.
	* Windows
	• A hyphen (-) is displayed if the pertinent interface is in the
	Down status and is not teamed.
Speed	Preset value of the transmission speed in megabits per second.
	* Linux
	• A hyphen (-) is displayed if [Interface Name] is "lo."
	• The correct values are not displayed if the pertinent interface is
	not linked up.
	• A hyphen (-) is displayed for a virtual interface based on
	bonding/GLS.
	* Windows
	• A hyphen (-) is displayed if the pertinent interface is in the
	Down status.

Item	Description
IP Address	IP address
	* Linux
	A hyphen (-) is displayed if the IP address is not initialized or
	the NIC is under GLS control.
	* Windows
	A hyphen (-) is displayed if the IP address is not initialized or if
	the network of the pertinent interface is in the Down status.
IP Subnet Mask	Subnet mask
	* Linux
	A hyphen (-) is displayed if the IP address is not initialized or
	the NIC is under GLS control.
	* Windows
	A hyphen (-) is displayed if the IP address is not initialized or if
	the network of the pertinent interface is in the Down status.
Packets-In	Number of IP packets received by an interface.
* Only Linux supported	If the [Interface Name] is a virtual IP, a hyphen (-) is displayed.
	* The latest information will be obtained when the window opens.
Packets-Out	Number of IP packets transmitted by an interface.
* Only Linux supported	A hyphen (-) is displayed if the interface is a virtual interface based
	on the alias function.
	* When the window opens, up-to-date information will be
	retrieved.
	* The latest information will be obtained when the window opens.

 $[Partition] \rightarrow [Partition \ \#x] \rightarrow [PSA] \rightarrow [Network] \rightarrow [Network \ Interfaces]$

(2) GUI operation

None

5-24 C122-E003-02EN

5.6.2 Network Routing window

The [Network Routing] window displays the routing status in the partition.

Note: This window is only supported when the OS in the partition is Linux.

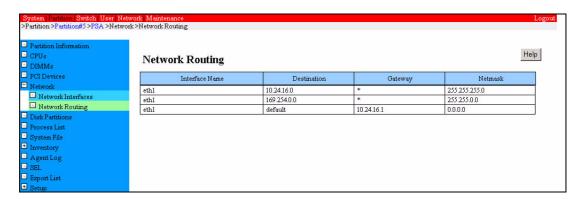


Figure 5.11 [Network Routing] window

Table 5.13 Displayed items in the [Network Routing] window

Item	Description
Interface Name	Interface name
Destination	Transmission destination
Gateway	Gateway. If there is no gateway, an asterisk [*] is displayed.
Netmask	Net mask

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Network] \rightarrow [Network Routing]$

(2) GUI operation

None

5.7 Disk Partitions Window

The [Disk Partitions] window displays disk partition information.

Note: This window is only supported when the OS in the partition is Linux.

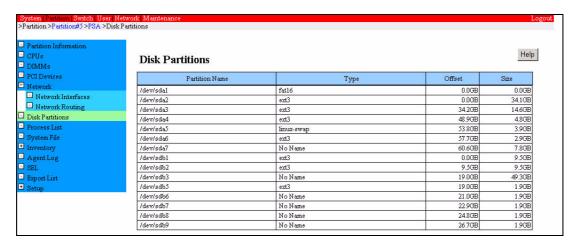


Figure 5.12 [Disk Partitions] window

Table 5.14 Displayed items in the [Disk Partitions] window

Item	Description
Partition Name	Disk partition name
Туре	Disk partition type
	If no type is set, "No Name" is displayed.
	Example: The disk has been partitioned, but the partitions have not
	been formatted.
Offset	Disk partition offset value
Size	Disk partition size

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Disk Partitions]$

(2) GUI operation

None

5-26 C122-E003-02EN

5.8 Process List Window

The user can use the [Process List] window to monitor the current process information. For example, the user can watch the CPU usage time by process and thus easily check whether application processes are operating normally. If an unnecessary process is detected, a specific signal to the process can be sent.

Note: This window is only supported when the OS in the partition is Linux.

The [Process List] window has the following functions, required for process monitoring:

- 1 Displaying process list
- 2 Manual/Automatic updating of process list
- 3 Sorting process list
- 4 Transmitting a signal to the specified process

Note: The Administrator/Operator/User privilege can select these functions. However, the signal transmission function is not available to users with the User privilege. These functions are hidden on the menu and not available to users with the CE privilege.

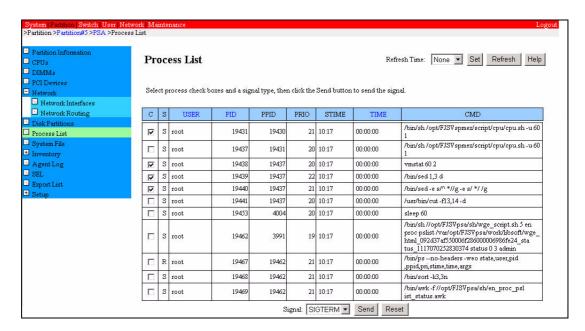


Figure 5.13 [Process List] window

Table 5.15 Displayed and setting items in the [Process List] window

Item	Description
Refresh Time	Screen update time. The user can select one of the following
	options:
	None: No updating
	• 5sec: 5 seconds
	• 10sec: 10 seconds
	• 30sec: 30 seconds
	• 60sec: 60 seconds
	The default setting is [None].
С	Check boxes for the signal transmission function (more than one
	can be checked).
	The init process and [] process cannot be selected.
	Users with the User privilege can not select any of the check
	boxes.
S	Process status:
	• D: Sleep status where no interrupt is permitted
	• R: Executable
	S: Sleep status
	T: Trace in progress or stopped
	• Z: Zombie process (no longer exists)
USER	Process user name
PID	Process ID
PPID	Parent process ID
PRIO	Priority
STIME	Process start time:
	• Less than 24 hours: Process start time (Example: 14:20)
	• 24 hours or more: Process start date (Example: Mar04)
TIME	Cumulative CPU usage time
CMD	Command name
Signal	Signals that can be transmitted. The user can select one of the
	following values:
	• SIGTERM
	• SIGHUP
	• SIGKILL
	• SIGINT
	• SIGQUIT
	The default setting is [SIGTERM].
	The [Signal] pulldown list is available only to the Administrator/
	Operator privilege.

5-28 C122-E003-02EN

Button	Description
Set	Click the [set] button to set the automatic screen update time to the
	value selected from the [Refresh Time] pulldown list.
Refresh	Click the [Refresh] button to manually reload process list.
USER	Click [USER] to sort the process list in ascending order by user
	name.
PID	Click [PID] to sort the process list in ascending order by process
	ID.
TIME	Click [TIME] to sort the process list in descending order of
	cumulative CPU usage time.
Send	Check the check box of a process, select the signal, click the
	[Send] button, and the confirmation dialog box opens. Click the
	[OK] button in the confirmation dialog box, and the selected signal
	is transmitted to the specified process.
	The [Send] button is available only to the Administrator/Operator
	privilege.
Reset	Click the [Reset] button, and the checked check boxes are reset to
	the unchecked state.
	The [Reset] button is available only to users with the
	Administrator/Operator privilege.

Table 5.16 Buttons in the [Process List] window

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Process List]$

(2) GUI operation

- Updating process list
 - Select the update time from the [Refresh Time] pulldown list, and click the [Set] button.
 - The selected update time is set, and the process list is automatically updated and redisplayed.
 - Click the [Refresh] button.
 The process list is manually updated and redisplayed.
- Sorting process list
 - 1 Click one of the [USER]/[PID]/[TIME] buttons in the process list information.

The process list has been sorted with one of [User], [PID], or [TIME] used as the keyword.

- · Transmitting a signal to the specified process
 - 1 To transmit a signal to a process, check the check box of the process, select the signal from the [Signal] pulldown list, and click the [Send] button. The confirmation dialog box opens.
 - 2 Click [OK] in the confirmation dialog box.

 The specified signal is transmitted to the specified process, and the process list after transmission is displayed.

5-30 C122-E003-02EN

5.9 System File (Selection) Window

The [System File] (selection) window displays the names of specific system files. The system administrator can use this function to select necessary system files and display them to facilitate the administration work.

Note: This window is only supported when the OS in the partition is Linux.

The [System File] window has the following functions:

- 1 Selecting system files
- 2 Displaying system files (the following system files can be displayed):
 - /etc/hosts
 - /etc/nsswitch.conf
 - /etc/inittab
 - /etc/fstab
 - /etc/exports

These functions are available on the menu to the Administrator/Operator/User privilege.

The functions are hidden and not available on the menu to the CE privilege.

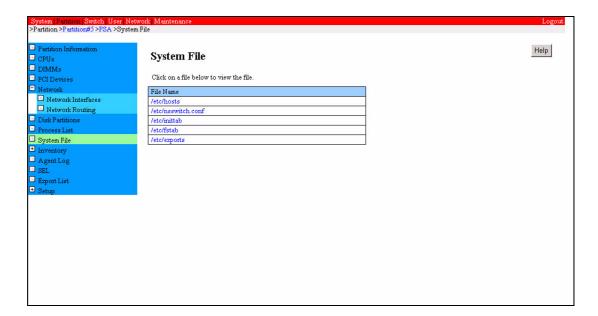


Figure 5.14 [System File] (selection) window

Table 5.17 Displayed item in the [System File] (selection) window

Item	Description
File Name	Names of system files, as follows:
	• /etc/hosts
	• /etc/nsswitch.conf
	• /etc/inittab
	• /etc/fstab
	• /etc/exports

Table 5.18 Buttons in the [System File] (selection) window

Button	Description	
System file name	Click the box containing a file name to display the contents of the	
	file.	

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [System File]$

(2) GUI operation

1 Click a system file.

The contents of the system file are displayed in the [System File] (display) window.

Note: If the selected system file cannot be displayed, an error message is displayed in the following format:

Error message	Cause
No such file	The specified file does not exist.
No absolute path	The file is specified with a relative path.
Read permission denied	When a user with User privilege uses this function, read
	permission to the system files listed in Table 5.17 is not given to
	"other users."
File size over	The specified file is larger than 2 MB.

An error message is displayed in the window as shown below.

5-32 C122-E003-02EN

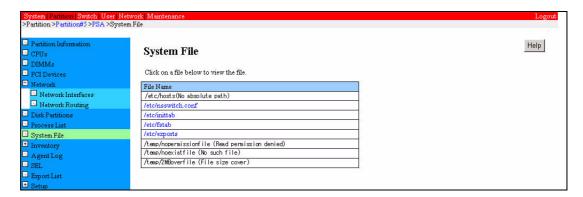


Figure 5.15 [System File] (selection) Error window

5.9.1 System File (display) window

The [System File] (display) window displays the contents of the system file selected in the [System File] (selection) window.

This function is available on the menu to the Administrator/Operator/User privilege.

The function is hidden and not available on the menu to the CE privilege.

Note: The ISO-8859-1 character set is used in the displayed PSA window. Therefore, if the displayed data includes an unsupported character, the [System file] window (displayed) may not display data normally. In this event, set the proper character code for the browser in the target window.

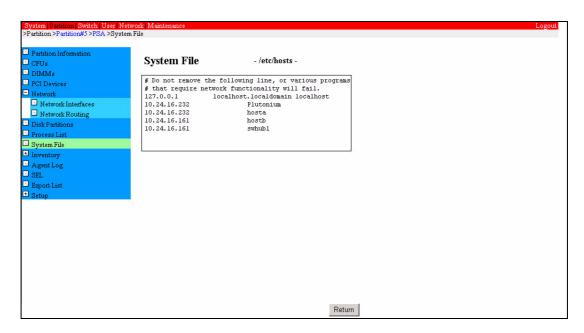


Figure 5.16 [System File] (display) window

This window is displayed when the system file [/etc/hosts] is selected in the [System File] (selection) window.

Table 5.19 Button in the [System File] (display) window

Item	Description
Return	Click the [Return] button to return to the [System File] (selection)
	window.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [System File] \rightarrow [file_name]$

(2) GUI operation

Click the [Return] button.The [System File] (selection) window is displayed again.

5-34 C122-E003-02EN

5.10 Inventory Menu

The [Inventory] menu displays inventories of the hardware and software in the partition.

This menu has the following windows:

- [Hardware Inventory] window
- [Software Inventory] window

This section describes these windows and operations in them.

5.10.1 Hardware Inventory window

The [Hardware Inventory] window displays an inventory of hardware (SB, IOU, CPU, DIMM, and PCI devices) in the partition.

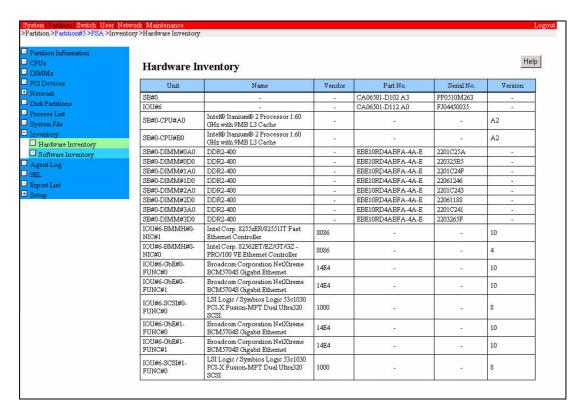


Figure 5.17 [Hardware Inventory] window

Table 5.20 Displayed items in the [Hardware Inventory] window

Item	Description
Unit	Identification name.
Name	Name
Vendor	Vendor ID or vendor name
PartNo.	Part number
SerialNo.	Serial number
Version	Version number

The following table describes what is displayed for devices in the columns of the above items. "-" indicates a column that is always displayed for the device.

	SB	IO_Unit	CPU	DIMM	PCI device
Unit	Identification	Identification	Identification	Identification	Identification
	name	name	name	name	name
Name	_	_	CPU model	Туре	Device name
Vendor	_	_	_	_	Vendor ID
PartNo.	Part number	Part number	_	Part number	_
SerialNo.	Serial number	Serial number	_	Serial number	_
Version	_	_	Stepping	_	Version
					number

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Inventory] \rightarrow [Hardware Inventory]$

(2) GUI operation

None

5-36 C122-E003-02EN

5.10.2 Software Inventory window

The user can use the [Software Inventory] window, at the time of a failure, to obtain installation package information, which can be used as troubleshooting data.

Note: This window is only supported when the OS in the partition is Linux.

The [Software Inventory] window provides the following functions.

- 1 Displaying RPM packages list and the OS version
- 2 Displaying details on an RPM package
- 3 Downloading RPM package list information

A file that stores RPM package list information is named [rpmlist.csv] by default.

The downloaded information is saved in the format shown below. For details on these items, see Table 5.23, "Displayed items in the [Software Inventory -Detail-] window."

```
[Name], [Version], [Release], [Architecture], [Vendor],
[Build Date], [Install Date], [Group], [Source RPM], [Size],
[License], [Packager], [URL], [Summary], [Description]
```

These functions are available to users with any user privilege.

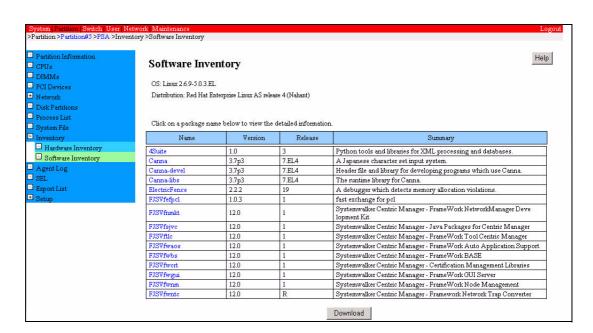


Figure 5.18 [Software Inventory] window

Remarks: If packages having the same RPM package name, but different CPU architectures are installed, the same RPM package name will be displayed multiple times in the name column.

Table 5.21 Displayed items in the [Software Inventory] window

· OS information

Item	Description	
OS	OS name and kernel version	
Distribution	Distribution name	

· RPM package lists

Item	Description
Name	RPM package name
Version	RPM package version
Release	Release information
Summary	Summary information

Table 5.22 Buttons in the [Software Inventory] window

Button	Description
RPM package name	Click an RPM package name to display the [Software Inventory -
	Detail-] window.
Download	Click the [Download] button to download RPM package list
	information in CSV format.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Inventory] \rightarrow [Software Inventory]$

(2) GUI operation

- Displaying detailed package
 - Click an RPM package name.
 The [Software Inventory -Detail-] window is displayed.
 - 2 Click the [Return] button in the [Software Inventory -Detail-] window.

The [Software Inventory] window is displayed again.

- Downloading package list information
 - 1 Click the [Download] button.
 - The [Download File] dialog box opens.
 - 2 Click the [Save] button in the [Download File] dialog box. The [Save As] dialog box opens.
 - 3 In the [Save As] dialog box, specify a file and click the [Save] button. The package list is saved in the specified file in CSV format.

5-38 C122-E003-02EN

5.10.2.1 Software Inventory -Detail- window

The [Software Inventory -Detail-] window displays details on an RPM package.

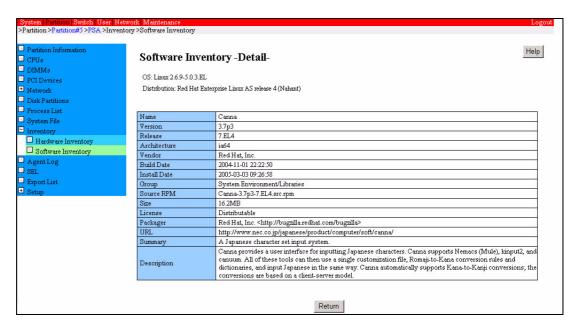


Figure 5.19 [Software Inventory -Detail-] window

Remarks: If the system includes RPM packages that correspond to multiple CPU architectures, the window displays detailed information on each of the CPU architectures.

Table 5.23 Displayed items in the [Software Inventory -Detail-] window

OS information

Item	Description	
OS	OS name and kernel version number	
Distribution	Distribution name	

· RPM package detail

Item	Description	
Name	RPM package name	
Version	RPM package version number	
Release	Release information	
Architecture	Indicates the CPU architecture.	
Vendor	Vendor information	
Build Date	Build date and time, as follows:	
	yyyy-MM-dd HH:mm:ss	
Install Date	Installation date and time, as follows:	
	yyyy-MM-dd HH:mm:ss	
Group	Group	
Source RPM	Source RPM information	
Size	Size in bytes, kilobytes, megabytes, or gigabytes (calculated to the	
	first decimal place with the digits in subsequent decimal places	
	omitted).	
License	License	
Packager	Package creator	
URL	URL information	
Summary	Summary information	
Description	Detailed information	

Table 5.24 Button in [Software Inventory -Detail-] window

Button	Description
Return	Click the [Return] button to return to the [Software Inventory]
	window.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Inventory] \rightarrow [Software Inventory] \rightarrow RPM$ package name

(2) GUI operation

Click the [Return] button.The [Software Inventory] window is displayed again.

5-40 C122-E003-02EN

5.11 Agent Log Window

The [Agent Log] window displays an agent log list.

An agent log is a recorded history of PSA actions (Events detected within PSA with IDs from 00000 to 09999 are excluded.) Up to 5,000 agent logs are stored in binary format. When the maximum number of logs is reached, the logs are overwritten, starting from the oldest ones.

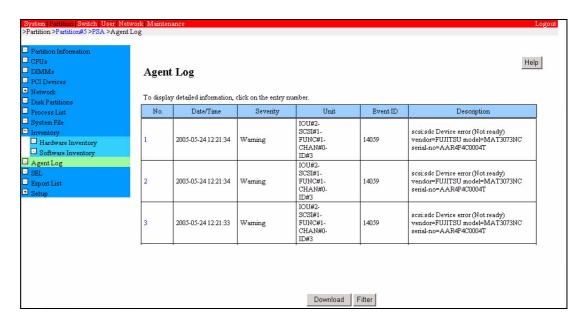


Figure 5.20 [Agent Log] window

On the initial screen, the latest 1,000 messages are displayed in descending order by time. Specify conditions in the [Agent Log Filtering Condition] window, and the messages that match the specified conditions are displayed.

The list view window is horizontally split into two frames: the top frame displays a list of messages, and the bottom frame displays details related to the selected message. The bottom frame is blank when the list is initially displayed.

If there is no agent log or none matches the specified conditions, the list view window displays the displayed item titles together with a message indicating that no log to be displayed exists.

Additional note: Up to 5000 agent log items can be stored, but one window can display up to 1000. To view the hidden agent log, specify filter conditions.

Note: The window supports ISO-8859-1 for displaying PSA action information. If the displayed window includes any character that is not supported, the [Agent Log] window contents may not be normally displayed. In such cases, specify an appropriate character code for the browser displaying the window.

Table 5.25 Displayed and setting items in the [Agent Log] window

Item	Description
Number of agent log	Number of displayed agent log items and number of stored agent
items displayed	log items for PSA actions
	Example: The latest 1,000 items out of 5,000 items are displayed:
	Results 1000 of 5000
No	Log number.
	If detailed information is available, this is underlined (linked).
Date/Time	Log time, as follows:
	yyyy-MM-dd HH:mm:ss
Severity	Severity level:
	Error: Serious problem such as a hardware failure
	• Warning: Warning status (An event that is not serious but will
	possibly develop into a problem.)
	• Information: Information (Normal event)
Unit	Identification name of the location. If the unit name is unknown,
	"Unknown" is displayed.
EventID	Event ID
Description	Message
Detailed information	Details related to the message. Details on the selected log are
area (displayed in the	displayed. If messages contain Japanese character codes, they may
bottom frame)	be corrupted.

Table 5.26 Buttons in the [Agent Log] window

Button	Description
Each box containing a	If detailed information is available, the number in the [No] column
log number under [No]	is underlined (linked). Clicking the link displays detailed agent log
	information in the bottom frame.
Download	Click the [Download] button to download all agent logs stored in
	the partition in CSV file format, regardless of the display
	conditions.
Filter	Click the [Filter] button to display the [Agent Log Filtering
	Condition] window, which allows the user to specify message
	filtering conditions.

5-42 C122-E003-02EN

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Agent Log]$

(2) GUI operation

- · Downloading all agent logs stored in the partition in CSV file format
 - 1 Click the [Download] button.
 - The [Download File] dialog box opens.
 - 2 Click the [Save] button in the [Download File] dialog box. The [Save As] dialog box opens.
 - 3 In the [Save As] dialog box, specify a file name, specify CSV files (with the extension .csv) as the file type, and click the [Save] button.
 - A CSV file is downloaded to the specified location, and the [Download Completed] message box is displayed.
 - 4 Click the [Close] button in the [Download Completed] message box. The [Agent Log] window is displayed again.
- Specifying filtering conditions
 - Click the [Filter] button.
 The [Agent Log Filtering Condition] window is displayed.
 - 2 Specify conditions in the [Agent Log Filtering Condition] dialog box, and click the [Apply] button.

The conditions are set, and the [Agent Log] window is displayed again.

Remarks:

- If at least one Agent Log item has been created, filtering conditions can be specified.
- The specified filtering conditions remain in effect as long as the [Agent Log] window is the active window. However, the conditions are reset when another window becomes the active window or the window is redisplayed from the menu.

5.11.1 Agent Log Filtering Condition window

The user can use the [Agent Log Filtering Condition] to specify filtering conditions for displaying a log list in the [Agent Log] window. Each filtering condition item is processed as an AND operand for displaying the list.

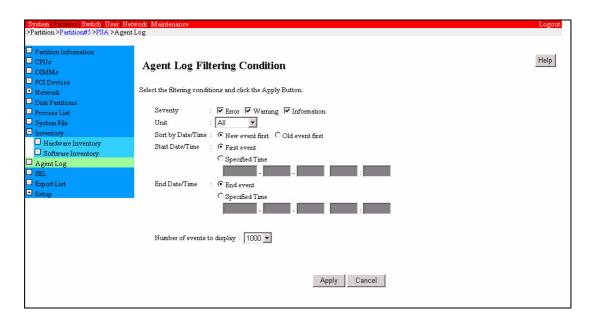


Figure 5.21 [Agent Log Filtering Condition] window

Table 5.27 Displayed and setting items in the [Agent Log Filtering Condition] window

Item	Description
Severity	The user can select an alert level by checking a check box (more
	than one can be checked):
	Error: Serious problem such as a hardware failure
	• Warning: Event that is not serious but will possibly develop into
	a problem
	Information: Normal event such as partition power-on
	All levels are checked by default.

5-44 C122-E003-02EN

Item	Description
Unit	The user can select a unit from the pulldown list (only one can be
	selected):
	• All
	• SB
	• CPU
	• DIMM
	• IO_Unit
	• PCI_Card
	• Disk
	Software
	The default setting is [All].
Sort by Date/Time	The user can specify the order for displaying events, from new
	events to old events or vice versa, by clicking a radio button:
	New event first
	Old event first
	The default setting is [New event first].
Start Date/Time	The user can select the start time:
	• First event: Start from the first event
	Specified Time: Start from the specified time
	The year, month, day, hour, and minute of the start time must also
	be entered when Specified Time is selected.
	The default setting is [First event].
End Date/Time	The user can select the end time:
	• End event: End at the last event
	Specified Time: End at the specified time
	The year, month, day, hour, and minute of the end time must also
	be entered when Specified Time is selected.
	The default setting is [End event].
Number of events to	The user can select the maximum number of events displayed in
display	the window from the pulldown list:
	100/200/300/400/500/1000
	The default setting is 1000.

Table 5.28 Buttons in the [Agent Log Filtering Condition] window

Button	Description
Apply	Click the [Apply] button to display a list of only the messages that
	match the specified conditions in the [Agent Log] window.
	If no matching message exists, a message with a title is displayed,
	stating that there is no log to be displayed.
Cancel	Click the [Cancel] button to return to the previous window with an
	agent log list.
Default Setting	Click the [Default Setting] button to return the selected values to
	the default values.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Agent Log] \rightarrow [Filter]$

(2) GUI operation

- To display the [Agent Log] window in specified filtering conditions:
 - 1 Specify conditions, and click the [Apply] button.

The [Agent Log] window is displayed again. The [Agent Log] window displays a list of only the messages that match the specified conditions. If no matching message exists, a message with a title is displayed, stating that there is no log to be displayed.

- To redisplay the [Agent Log] window
 - 1 Click the [Cancel] button. The specified selections are canceled and the [Agent Log] window reappears.
- To return the selected values to the default values:
 - 1 Click the [Default Setting] button. The conditions selected for all parameters are cleared and the parameters revert to their default values.

5-46 C122-E003-02EN

5.12 SEL Window

The [SEL] window allows you to download SEL files (binary format) from the partition.

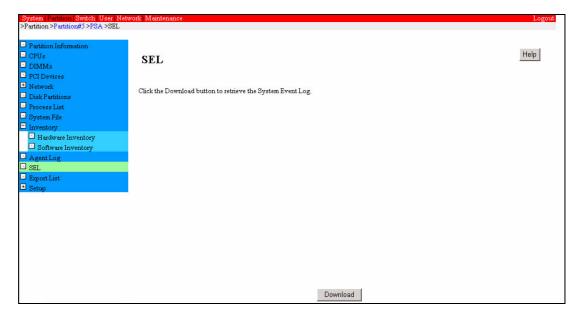


Figure 5.22 [SEL] window

Table 5.29 Buttons in the [SEL] window

Item	Description
Download	Click the [Download] button, and a download confirmation dialog
	box and a dialog box used to specify the destination file name open
	in turn. Click the [Save] button in each of these two dialog boxes
	to download SEL log files currently stored in the partition.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [SEL]$

(2) GUI operation

- 1 Click the [Download] button.
 The [Download File] dialog box opens.
- 2 Click the [Save] button in the [Download File] dialog box. The [Save As] dialog box opens.

- In the [Save As] dialog box, specify a file name (without selecting a file type nor specifying an extension) and click the [Save] button.

 The file is downloaded and the [Download Completed] message box is displayed.
- 4 Click the [Close] button in the [Download Completed] message box. The [SEL] window is displayed again.

5-48 C122-E003-02EN

5.13 Export List Window

The [Export List] window provides the export function, which allows the user to save snapshots of information stored by PSA to files in CSV format.

Exporting is performed from the [Export] window.

Up to 100 files of export data can be saved. When the number of saved files exceeds 100, the oldest file is deleted and a new file is saved. As long as the number of saved files is less than the maximum number, export data is not deleted unless the user deletes it intentionally. Export data can be downloaded as many times as desired.

Downloaded export data is stored in CSV format, allowing it to be read using an application such as EXCEL.

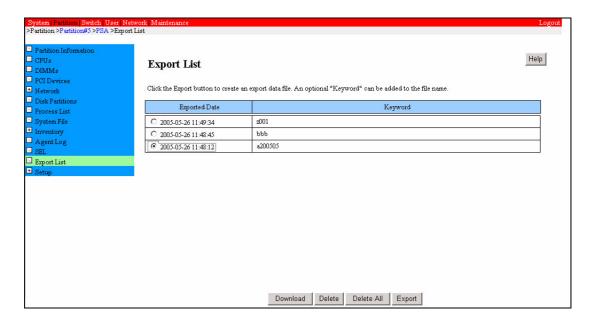


Figure 5.23 [Export List] window

On the initial screen of the Export List window, a list of files that have been exported is displayed, starting from the newest one.

Table 5.30 Displayed and setting items in the [Export List] window

Item	Description
Exported Date	Select the file to be downloaded or deleted, using the appropriate
(Radio Button)	radio button.
Exported Date	The export date and time is displayed.
	Example: 2004-05-06 08:45:00
	* The local time in the partition is used.
Keyword	The keyword entered at the export time is displayed.

Table 5.31 Buttons in the [Export List] window

Button	Description
Download	Click the [Download] button to download the selected export file
	to your terminal, using the download function.
Delete	Click the [Delete] button to delete the selected export file from the
	management domain in the partition.
Delete All	Click the [Delete All] button, and a confirmation dialog box opens.
	Click the [OK] button in the confirmation dialog box to delete all
	export files from the management domain in the partition.
Export	Click the [Export] button, and the export setting dialog box opens.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Export List]$

(2) GUI operation

- Saving a snapshot of information stored by PSA to a file in CSV format
 - 1 Click the [Export] button.
 The [Export] dialog box opens.
 - 2 Clicking the [Delete] button deletes the selected export file from the managed area in the partition.
 - When export is successful, a CSV file is created in the specified directory, and the [Export List] window is displayed again. The [Export List] window displays the latest information.
 - If export fails, the [Export Failed Message] dialog box opens.
 - 3 Click the [OK] button in the [Export Failed Message] dialog box. The [Export List] window is displayed again.

5-50 C122-E003-02EN

· Downloading an export file to your terminal

- 1 Select the radio button of the file to be exported (only one can be selected), and click the [Download] button.
 - The [Download File] dialog box opens.
- 2 Click the [Save] button in the [Download File] dialog box. The [Save As] dialog box opens.
- 3 In the [Save As] dialog box, specify a file name (with csv as the file type) and click the [Save] button.
 - A CSV file is downloaded to the specified location, and the [Download Completed] message box is displayed.
- 4 Click the button in the [Download Completed] message box to close the message box.
 - The [Export List] window is displayed again. The [Export List] window displays the latest information.

Deleting export files from the management domain in the partition

- Either click the [Delete All] button or select the radio button of the file to be deleted (only one can be selected), and click the [Delete] button.

 The [Confirm Deletion] dialog box opens.
- 2 Click the [OK] button in the [Confirm Deletion] dialog box.
 When the file or all files are successfully deleted, the [Export List] window is displayed again. The [Export List] window displays the latest information. If deletion fails, the [Deletion Failed] dialog box opens.
- 3 Click the [OK] button in the [Deletion Failed] dialog box. The [Export List] window is displayed again.

Note: When an attempt is made to download an export file to the terminal, the following message will be displayed if the file has already been deleted.

In this event, choose [Export List] from the menu again to redisplay the list.

5.13.1 Export window

The user can use the [Export] window to export files. The user can assign a keyword to the export data. A keyword is optional although it is useful in distinguishing data. A keyword is omitted in automatic export.

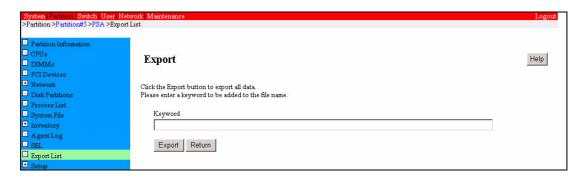


Figure 5.24 [Export] window

Table 5.32 Displayed and setting items in the [Export] window

Item	Description
Keyword	The user can enter a keyword (optional) in the text input field to
	add the keyword to export data. Up to 50 characters can be
	entered, including en-size alphanumeric characters, the en-size
	space character, and en-size symbols. However, this does not
	include the following symbols:
	<>%&",\
	This field is left blank to omit a keyword.

Table 5.33 Buttons in the [Export] window

Button	Description
Export	Click the [Export] button to verify the entered keyword, collect
	information that has been stored by PSA, and create a CSV file in
	the specified directory. When the file is successfully created, the
	[Export List] window displays the latest information, with the
	created file at the top of the list.
	If export fails, the [Export Failed] dialog box opens. Click the
	[OK] button, and the [Export List] window displays the latest list.
Return	Click the [Return] button to cancel export processing. The [Export
	List] window displays the latest list.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Export List] \rightarrow [Export]$

5-52 C122-E003-02EN

(2) GUI operation

- 1 Enter a keyword, and click the [Export] button.
 When a CSV file is successfully created, the [Export List] window is displayed again. The [Export List] window displays the latest list, with the created file at the top of the list.
- 2 If the export operation fails, click the [OK] button in the [Export Failed Message] dialog box.

If export fails, the [Export Failed Message] dialog box opens.

The [Export List] window is displayed again, and the window displays the latest list.

5.14 Setup Menu

The [Setup] menu has the following windows:

- [Watchdog] window
- [S.M.A.R.T.] window

This section describes these windows and operations in them.

5.14.1 Watchdog window

Monitoring with Software Watchdog and monitoring with Boot Watchdog can be set up in the [Watchdog] window.

Only a setting privilege user can change the settings.

The SoftWare Watchdog is a function that periodically monitors the partition status via MMB firmware, and it executes the specified action unless PSA instructs the MMB to restart the Watchdog timer within a specified length of time.

The Boot Watchdog is a function that executes the specified action unless OS boot is completed within a specified length of time. For the Boot Watchdog, specify options other than the timeout value in the [ASR Control] window of the MMB. The [ASR Control] window also provides a function that disables the Boot Watchdog settings in an emergency. For details about the [ASR Control] window, see Section 3.3.7.3, "ASR Control window" in Part 2, "MMB."

5-54 C122-E003-02EN

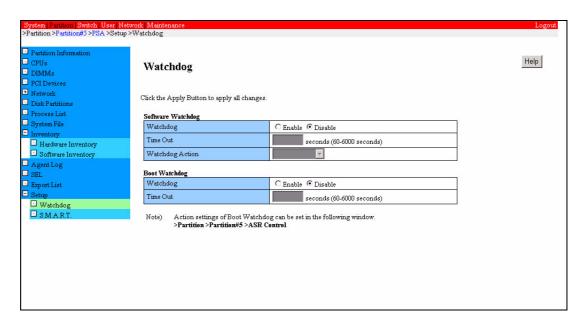


Figure 5.25 [Watchdog] window

Table 5.34 Displayed and settings items in the [Watchdog] window

Itom	Description
Item	Description
Software Watchdog	
Watchdog	The user can enable or disable SoftWare Watchdog monitoring:
	Disable: Disable monitoring
	• Enable: Enable monitoring
	The default setting is [Disable].
TimeOut	The user can specify a timeout value in seconds, which is used
	while the SoftWare Watchdog monitoring is enabled:
	Range: 60 to 6000 seconds
	This item can be specified only if [Enable] is selected. The default
	setting is 3600 seconds.
Watchdog Action	The user can select from a pulldown list the action to be executed
	in the event that control is not returned after a timeout:
	No Action: Execute no action. Except SEL output.
	• Reset: Reset the partition
	• Power Off: Power off the partition forcibly without the normal
	OS termination process (shutdown)
	• Power Cycle: Forcibly power off the partition and power it on
	again
	• INIT: Issue an INIT interrupt to the partition
	You can only specify this item when you select [Enable]. The
	default is [No Action].

Item	Description
Boot Watchdog	
Watchdog	The user can enable or disable Boot Watchdog monitoring:
	Disable: Disable monitoring
	Enable: Enable monitoring
	The default setting is [Disable].
TimeOut	The user can specify a timeout value in seconds, which is used
	while Boot Watchdog monitoring is enabled:
	Range: 60 to 6000 seconds
	Specify a value calculated based on the period of time from the
	time the partition is switched on to the time the console/Syslog
	receives a startup completion message (the console displays
	Starting PSA services: [OK] or Starting PSA services: [OK] or
	Syslog includes "FJSVpsa: I00069 PM startup succeeded").
	Fujitsu recommends setting a value that is at least twice this
	elapsed time in order to prevent mistaken detection. Also,
	consider the time taken to save a dump in the event of an OS panic.
	You can only specify this item if you select [Enable]. The default
	value is 0 seconds. Note that you always need to change the
	default value.

Table 5.35 Buttons in the [Watchdog] window

Button	Description		
Apply	Click the [Apply] button to set the values entered for Watchdog		
	monitoring. Clicking this button validates the settings for both		
	Software Watchdog and Boot Watchdog.		
Cancel	Click the [Cancel] button to clear the entered values and revert to		
	the original settings.		

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Setup] \rightarrow [Watchdog]$

(2) GUI operation

- Setting up Watchdog monitoring (when correct values are entered)
 - 1 Select and enter values for the Watchdog monitoring settings, and click the [Apply] button.

If the entered values are correct, the [Confirm Settings] dialog box opens.

5-56 C122-E003-02EN

- 2 Click the [OK] button in the [Confirm Settings] dialog box.
 - The Watchdog monitoring settings are set.
 - When setup is successfully completed, the [Watchdog] window is displayed again.
 - If setup terminates abnormally, the [Abnormal Settings Report] dialog box opens.
- 3 Click the [OK] button in the [Abnormal Settings Report] dialog box. The [Watchdog] window is displayed again.
- Setting up Watchdog monitoring (when incorrect values are entered)
 - 1 Select and enter values for the Watchdog monitoring settings, and click the [Apply] button.
 - If the entered values are incorrect, the [Input Value Error] dialog box opens.
 - 2 Click the [OK] button in the [Input Value Error] dialog box. The [Watchdog] window is displayed again.

5.14.2 S.M.A.R.T. window

The [S.M.A.R.T.] windows allows you to specify whether to perform S.M.A.R.T. monitoring for HDDs in order to detect warning signs of impending failures. This setting can only be changed by users who have been granted the setting privilege.

The setting is implemented for all disks at the same time.

The target disks are as follows:

- Internal disks (except disks that do not support S.M.A.R.T. monitoring)
- External disks (except RAID units and disks that do not support S.M.A.R.T. monitoring)

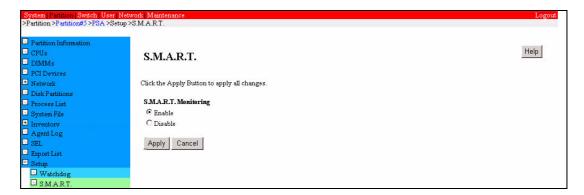


Figure 5.26 [S.M.A.R.T.] window

Table 5.36 Displayed and settings items in the [S.M.A.R.T.] window

Item	Description		
S.M.A.R.T. Monitoring	Specify whether to perform S.M.A.R.T. monitoring.		
	Enable: Enable monitoring		
	Disable: Disable monitoring		
	The default setting at the time of shipment is [Enable].		
	Only a setting privilege user can specify this setting. A read		
	privilege user can view the selected setting but cannot specify the		
	setting.		

Table 5.37 Buttons in the [S.M.A.R.T.] window

Button	Description
Apply	Click the [Apply] button to set the selected S.M.A.R.T. monitoring setting. If either of the radio buttons is selected, the [Confirm Settings] dialog box opens. When the [OK] button in the [Confirm Settings] dialog box is clicked, the selected S.M.A.R.T. monitoring setting is actually set, and the [S.M.A.R.T.] window is displayed with the setting reflected.
Cancel	Click the [Cancel] button to revert to the original setting.

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [PSA] \rightarrow [Setup] \rightarrow [S.M.A.R.T.]$

(2) GUI operation

1 Select a S.M.A.R.T. monitoring setting by selecting a radio button, and click the [Apply] button.

If input is correct, the [Confirm Settings] dialog box opens.

2 Click the [OK] button in the [Confirm Settings] dialog box.

The S.M.A.R.T. monitoring setting is set.

When setup is successfully completed, the [S.M.A.R.T.] window is displayed again.

If setup terminates abnormally, the [Abnormal Settings Report] dialog box opens.

3 Click the [OK] button in the [Abnormal Settings Report] dialog box. The [S.M.A.R.T.] window is displayed again.

5-58 C122-E003-02EN

CHAPTER 6 CLI Operations

PSA is a system management application that runs on the OS for each partition on PRIMEQUEST series machines.

6.1 Basic CLI Operations

This section describes the CLI provided for OS commands.

Login to the OS is required for use of the CLI.

For details on the commands available to users depending on their user privileges, see Table 6.1, "Commands."

6.1.1 List of CLI commands

A list of PSA CLI commands is provided below. The letters in the Privilege column have the following meanings:

- Y: Requires the root privilege (Linux) or Administrator privilege (Windows).
- N: The command can be executed by general users.

Table 6.1 Commands

No	Command name	Privilege	Remarks	Linux	Windows
1	SAF-TE operation	Y	Operates an SAF-	Y	N
	command		TE unit and HDDs		
			under its control.		
2	PSA start/stop	Y	Starts and stops	Y	(*1)
	command		PSA.		
3	PSA troubleshooting	Y	Collects	Y	Y
	data collection		troubleshooting data		
	command		for PSA.		
4	Filter definition update	Y	Copies filter	Y	Y
	commands		definitions to a PSA		
			work directory or		
			updates them.		
5	Get local partition	N	Outputs the local	Y	Y
	number command		partition number to		
			the standard output.		
6	Get serial number	N	Outputs the serial	Y	Y
	command		number to the		
			standard output.		
7	SNMP security setting	Y	Sets the host that is	N	Y
	command		to accept SNMP		
			packets.		

^{*1} Click [Control Panel], [Management Tools], and [Services] in that order to start/stop PRIMEQUEST Server Agent and PRIMEQUEST PEMCMD Service.

6-2 C122-E003-02EN

6.2 SAF-TE Operation Command (diskctrl)

The disketrl command displays SAF-TE units and HDDs under its control in a list, powers on and off HDDs, and turns on and off location LEDs, which indicate the HDD locations, according to the specified options.

Remarks:

- The execution of this command requires the root privilege.
- Before the HDD can be switched off for preventive replacement, it must be unmounted. If a mirroring configuration is used for the disks included in the GDS, the disks should first be detached.

Note:

- When hot-swapping or hot-adding an internal hard disk for a PRIMEQUEST IOU, simply inserting the hard disk will not allow power to be supplied to the hard disk. You always need to execute the pertinent SAF-TE operation command for power-on.
- RAID devices are excluded here. For information on how to replace RAID hard disks, refer to the pertinent manual for the RAID device.
- When you are executing this command for hard disk replacement, the following message may be output during power-on operation. For operation, you do not need to be concerned about this message.

```
kernel: mptscsih: ioc0: >> Attempting bus reset!
(sc=e000004082adc480)
kernel: mptbase: ioc0: IOCStatus(0x0048): SCSI Task
Terminated
```

- If you insert a hard disk, turn on the power to the disk, realize that you have inserted the disk with the disk orientation incorrect, turn off the power, and re-insert the disk correctly, you must be careful so that you execute power-off at least 60 seconds or so after power-on. If the interval between the power-on and power-off is too short, the OS's HotPlug process, which is activated at power-on, may cause the following error message to be output:

```
kernel: Device sdb not ready.
kernel: end_request: I/O error, dev sdb, sector 204706
kernel: Buffer I/O error on device sdb1, logical block
6396
```

- If you start PSA during SAF-TE operation command execution, PSA will not work normally. Start PSA after the command ends its processing.

For information on the operating procedure, see the *PRIMEQUEST* 480/440 Operation Manual (C122-E002).

(1) Synopsis

/opt/FJSVpsa/bin/diskctrl [-l|-e|-i|-o|-c] [Devicename|/dev/sgx/slotno]

(2) Options

[-l|-e|-i|-o|-c]

-1: Status display

Displays each SAF-TE unit and its subordinate HDDs recognized by the OS in a list.

-e: Power-off instruction

Turns off power to the HDD specified in [Devicename] or the slot of the SAF-TE unit specified in [/dev/sgx/slotno], and turns on the fault LED.

-i: Location display

Initiates blinking of the fault LED for the HDD specified in [Devicename] or the slot of the SAF-TE unit specified in [/dev/sgx/slotno].

-o: Location turnoff

Turns off the fault LED for the HDD specified in [Devicename] or the slot of the SAF-TE unit specified in [/dev/sgx/slotno].

-c: Power-on command

Turns on power to the HDD specified in [Devicename] or the slot of the SAF-TE unit specified in [/dev/sgx/slotno].

6-4 C122-E003-02EN

[Devicename|/dev/sgx/slotno

Specifies the logical device name of the HDD subject to operation or the slot number of an SAF-TE unit:

Devicename: Specify the logical device name of the OS.

(Example: /dev/sda if it is the first SCSI disk unit)

/dev/sgx/slotno: Specify the slot number of sgx (SAF-TE device).

(Example: /dev/sg0/1 if it is the slot 1 of the sg0).

(3) Example

The following example displays all SAF-TE units in the OS and the status of their individual slots in a list:

```
# /opt/FJSVpsa/bin/diskctrl -l
```

Display example

Description of status

```
/dev/sq0
      0 /dev/sda Power-On Fault LED-Off
                                                           <- Normal operation
      1 /dev/sdb Power-On Fault LED-Predicted Fault <- Predicted fault
/dev/sg1
      0 --mount Not Activated Fault LED-Off
                                                           <- No HDD is inserted or powered on.
      1 --mount Power-Off Fault LED-On
                                                           <- Power-off due to a failure
/dev/sg2
      0 /dev/sdd Power-on Fault LED-Identify
                                                           <- Location display on
                                                           <- Empty slot
      1 none
/dev/sg3
      0 none
                                                           * The number displayed under /
      1 none
                                                             dev/sg0 indicates the slot number.
```

The following example powers off an HDD before the unit is replaced or removed:

```
# /opt/FJSVpsa/bin/diskctrl -e /dev/sda
```

The following example verifies the HDD mounting location before an additional HDD is installed:

```
# /opt/FJSVpsa/bin/diskctrl -i /dev/sg0/3
```

The following example turns off a fault LED that the user kept blinking to indicate the location for HDD replacement or addition:

/opt/FJSVpsa/bin/diskctl -o /dev/sg0/3

The following example powers on an HDD that the user installed for HDD replacement or addition:

/opt/FJSVpsa/bin/diskctrl -c /dev/sda

(4) Output messages

The following messages will be output at the time of abnormal termination.

Message	Meaning	Response
FJSVpsa: E 02150 disketrl GDS	GDS access failed.	Verify that the installed GDS is
access failed		correctly configured.
FJSVpsa: E 02151 diskctrl Device	Access to the specified	Retry. If an error recurs, check if the
access faild	device failed.	device is already offline because of
		failure. If sg does not exist under /
		dev, load the sg driver using
		modprobe and then retry.
FJSVpsa: E 02152 disketrl no	Insufficient memory	Check for free memory space
memory available		availability. Terminate unnecessary
		processes and then retry.
FJSVpsa: E 02157 diskctrl Power-	HDD power-off failed.	Retry. If an error recurs, delete or
off failed		replace the HDD when the power to
		the partition is off.
FJSVpsa: E 02158 diskctrl Cannot	LED blinking failed.	Retry. If an error recurs, the SAF-TE
blinking location-LED		device may be faulty. Check for an
		sg error. Perform replacement or
		other action.
FJSVpsa: E 02159 diskctrl Cannot	LED extinguishing	Retry. If an error recurs, the SAF-TE
clear location-LED	failed.	device may be faulty. Check for an
		sg error. Perform replacement or
		other action.
FJSVpsa: E 02160 diskctrl Power-	HDD power-on failed.	Check the slot number of the
on failed		specified SAF-TE device and retry.
		If an error recurs, the SAF-TE device
		may be faulty. Check for an sg error.
		Perform replacement or other action.
FJSVpsa: E 02165 diskctrl	No execution privilege.	Log in as the superuser and retry.
Operation not permitted		
FJSVpsa: E 02166 diskctrl	The command being	None
Stopped	executed was canceled	
	by Ctrl+C.	

6-6 C122-E003-02EN

Message	Meaning	Response	
FJSVpsa: E 02167 disketrl Invalid	An invalid option was	Specify correct options.	
option	specified.		
FJSVpsa: E 02169 diskctrl too	Incorrect number of	Specify correct options.	
few or more option	command options.		
FJSVpsa: E 02170 disketrl Cannot	HDD rotation stop	Retry. If an error recurs, check	
stop HDD	failed.	whether the device is already offline	
		because of failure.	
FJSVpsa: E 02171 diskctrl Cannot	Device information	Check the HDD information	
get device information	acquisition failed.	recognized by the OS. If no sg exists	
		under /dev, load the sg driver using	
		modprobe and then retry.	
FJSVpsa: E 02173 disketrl sg	sg (SAF-TE device)	Load the sg driver using modprobe	
device not found	cannot be found.	and then retry.	
FJSVpsa: E 02174 diskctrl Device	The specified device is	Check for the presence of the device	
not found	not found.	and specify the correct device name.	
		If no sg exists under /dev, load the sg	
		driver using modprobe and then retry.	
FJSVpsa: E 02175 diskctrl SAF-	A command on the SAF-	Retry. If an error recurs, the SAF-TE	
TE access failed (Read Enclosure	TE device encountered	device may be faulty. Check for an	
Configuration)	an error.	sg error. Perform replacement or	
		other action.	
FJSVpsa: E 02176 diskctrl SAF-	A command on the SAF-	Retry. If an error recurs, the SAF-TE	
TE access failed (Read Enclosure	TE device encountered	device may be faulty. Check for an	
Status)	an error.	sg error. Perform replacement or	
		other action.	
FJSVpsa: E 02177 disketrl SAF-	A command on the SAF-	Retry. If an error recurs, the SAF-TE	
TE access failed (Read Device	TE device encountered	device may be faulty. Check for an	
Slot Status)	an error.	sg error. Perform replacement or	
		other action.	
FJSVpsa: E 02186 %s is busy.	A power-off instruction	Issue the power-off instruction later.	
Please retry after a few minutes.	was issued to a busy		
	device.		
FJSVpsa: E 02187 internal error	An internal error	Contact a certified service engineer.	
	occurred.		

6.3 PSA Start/Stop Command (y30FJSVpsa)

The [y30FJSVpsa] command starts or stops the PSA.

Remarks:

- The execution of this command requires the root or Administrator privilege.
- Since PSA is a daemon program, it usually is automatically started at the time of boot.
- When PSA is stopped and restarted, all statuses contained in PSA are cleared.

Note: If you start PSA during SAF-TE operation command execution, PSA will not work normally. Start PSA after the command ends its processing.

(1) Synopsis

/sbin/service y30FJSVpsa start | stop

(2) Options

start | stop

start: Starts PSA. stop: Stops PSA.

(3) Examples

The following example starts PSA:

/sbin/service y30FJSVpsa start

The following example stops PSA:

/sbin/service y30FJSVpsa stop

(4) Exit status

0: Normal exit

>0: Abnormal exit

6-8 C122-E003-02EN

6.4 PSA Troubleshooting Data Collection Command (getopsa)

The getopsa command collects troubleshooting data for PSA. Specifically, it outputs the installation status of individual application packages, a list of files and modules, configuration files, internal logs, traces files, etc., to one compressed file.

Remarks: Execution of this command requires the root or Administrator privilege.

Linux

(1) Synopsis

/opt/FJSVpsa/sh/getopsa output_filename

Specify the output destination file for the troubleshooting data after it is compressed, by using a full pathname in [output_filename].

(2) Options

None

(3) Example

The following example outputs the troubleshooting data to a file in [/tmp/dump/psa_dump]:

/opt/FJSVpsa/sh/getopsa /tmp/dump/psa dump

(4) Exit status

0: Normal exit

>0: Abnormal exit

Windows

(1) Synopsis

```
getopsa output filename
```

Specify the output destination file for the troubleshooting data after it is compressed, by using a full pathname in [output filename].

(2) Options

None

(3) Example

The following example outputs the troubleshooting data to a file in [\tmp\dump\psa_dump]:

> getopsa C:\temp\dump\psa_dump

(4) Exit status

None

6-10 C122-E003-02EN

6.5 Filter Definition Update Commands (fltcpy, fltupdate)

There are two filter definition update commands: fltcpy and fltupdates.

The fltcpy command copies the definitions from any directory containing filter definitions expanded from an archive file, etc., to the PSA work directory for updating filter definitions.

The flupdate command copies the definitions from the PSA work directory for updating filter definitions to the operation directory to update the current filter definitions.

Remarks

- Execution of this command requires the root or Administrator privilege.
- Filter definitions cannot be updated while PSA is running.

(1) Synopsis

• Linux

```
/opt/FJSVpsa/sh/fltcpy [-f] [-d directory_name]
/opt/FJSVpsa/sh/fltupdate [-f]
```

Windows

```
fltcpy [-f] [-d directory_name]
fltupdate [-f]
```

(2) Options

- fltcpy

[-f]

Forcibly updates the filter definitions in the work directory. This option is required for reverting to older filter definitions.

Without this option specified, the system does not update the filter definitions in the work directory if they are newer than those that would replace them in an update.

[-d directory_name]

Allows the user to specify a directory containing expanded filter definitions for an update.

If this option is omitted, the current directory will be used.

- fltupdate

[-f]

Forcibly updates the filter definitions in the operation directory. This option is required for reverting to older filter definitions.

Without this option specified, the system does not update the filter definitions in the operation directory if they are newer than those that would replace in an update.

(3) Examples

- Linux
 - Ordinary update procedure

The following example stops PSA, executes the command for copying update files in the [/tmp/filter] directory containing an expanded file definition for an update, and restarts PSA after the fltcpy command is completed:

```
# /sbin/service y30FJSVpsa stop
# /opt/FJSVpsa/sh/fltcpy -d /tmp/filter
# /sbin/service y30FJSVpsa start *
```

- * If the OS is restarted after execution of the fltcpy command, this procedure is not required because PSA is automatically started.
- Forced update procedure

The following example reverts to the older filter definition (a filter definition in the [/tmp/filter] directory):

```
# /sbin/service y30FJSVpsa stop
# /opt/FJSVpsa/sh/fltcpy -f -d /tmp/filter
# /opt/FJSVpsa/sh/fltupdate -f
# /sbin/service y30FJSVpsa start
```

6-12 C122-E003-02EN

Windows

• Ordinary update procedure

The following example stops PSA, executes the command for copying update files in the [\tmp\filter] directory containing an expanded file definition for an update, and restarts PSA after the [fltcpy] command is completed:

```
> net stop "PRIMEQUEST Server Agent"
> fltcpy -d C:\temp\filter
> net start "PRIMEQUEST Server Agent"
```

- * If the OS is restarted after execution of the [fltcpy] command, this procedure is not required because PSA is automatically started.
- Forced update procedure

 The following example reverts to the older filter definition (a filter definition in the [\tmp\filter] directory):

```
> net stop "PRIMEQUEST Server Agent"
> fltcpy -f -d /tmp/filter
> fltupdate -f
> net start "PRIMEQUEST Server Agent"
```

(4) Output messages

Filter definition update commands display the following messages:

Message	Meaning	Response
FJSVpsa: E 02700 fltupdate	Initialization failed.	Verify that the login user is the
initialization failed		superuser and that the PSA is
		correctly installed.
FJSVpsa: E 02701 fltupdate	Version read failed.	Verify that the login user is the
version file read error		superuser and that the PSA is
		correctly installed.
FJSVpsa: E 02702 fltupdate	A format error was	Verify that the PSA is correctly
version file format error	detected in the version	installed.
	information.	
FJSVpsa: E 02703 fltupdate	An internal conflict	Contact a certified service engineer.
internal error	occurred.	
FJSVpsa: I 02704 fltupdate	The filter version is to	None
updating filter file	be updated.	
FJSVpsa: I 02705 fltupdate	The filter version does	None
unnecessary to update filter file	not need to be updated.	
FJSVpsa: E 02707 fltupdate failed	Filter updating was not	Verify that the login user is the
to update filter file	completed normally.	superuser and that the PSA is
		correctly installed.
FJSVpsa: I 02708 fltupdate	The filter was not	None
normally end	updated normally.	
FJSVpsa: E 02709 fltupdate failed	Filter updating was not	Verify that the login user is the
to update filter file	completed normally.	superuser and that the PSA is
		correctly installed.
FJSVpsa: E 02710 fltout version	An invalid value was	An error possibly exists in the
file format error	specified for the version	provided filter definition. Contact a
	information.	certified service engineer.
FJSVpsa: E 02711 fltupdate fltout	The filter file cannot be	Verify that the login user is the
filter file open error	opened.	superuser and that the PSA is
		correctly installed.
FJSVpsa: E 02712 fltout filter file		Verify that the login user is the
read error	failed.	superuser and that the PSA is
		correctly installed.
FJSVpsa: E 02713 fltout filter file	An error was detected in	An error possibly exists in the
format error	the filter file.	provided filter definition. Contact a
		certified service engineer.
FJSVpsa: E 02714 fltout	Initialization failed.	Verify that the login user is the
initialization failed		superuser and that the PSA is
		correctly installed.

6-14 C122-E003-02EN

Message	Meaning	Response
FJSVpsa: E 02716 fltupdate	The specified version	An error possibly exists in the
illegal version	value is outside the	provided filter definition. Contact a
	range.	certified service engineer.
FJSVpsa: E 02717 fltupdate	The specified version	An error possibly exists in the
illegal version	value is invalid.	provided filter definition. Contact a
		certified service engineer.
FJSVpsa: E 02718 fltupdate	The filter cannot be	Stop PSA and then retry.
cannot update filter file	updated because PSA is	
	active.	

6.6 Get Local Partition Number Command (getpartid)

The getpartid command outputs a local partition number to the standard output.

Linux

(1) Synopsis

/opt/FJSVpsa/sh/getpartid

(2) Options

None

(3) Example

```
$ /opt/FJSVpsa/sh/getpartid
```

(4) Exit status

0: Normal exit

>0: Abnormal exit

6-16 C122-E003-02EN

Windows

(1) Synopsis

getpartid

(2) Options

None

(3) Example

```
> getpartid
1
```

(4) Exit status

0: Normal exit

>0: Abnormal exit

6.7 Get Serial Number Command (getserialno)

The getserialno command outputs a serial number to the standard output. The first line is the serial number for domestic use and the second line is the serial number for FSC use.

Linux

(1) Synopsis

/opt/FJSVpsa/sh/getserialno

(2) Options

None

(3) Example

\$ /opt/FJSVpsa/sh/getserialno
xxxxxxxxxxx
yyyyyyyyyyyy

(4) Exit status

0: Normal exit

>0: Abnormal exit

6-18 C122-E003-02EN

Windows

(1) Synopsis

getserialno

(2) Options

None

(3) Example

> getserialno xxxxxxxxxx YYYYYYYYY

(4) Exit status

0: Normal exit

>0: Abnormal exit

6.8 SNMP Security Setting Command (setsnmpsec)

The setsnmpsec command sets SNMP service security (sets the host that accepts SNMP packets). If the SNMP service security setting is "Accept SNMP packets from any host." you do not need to execute this command.

If the MMB IP address is changed after PSA installation in an environment where the SNMP service security setting is "Accept SNMP packets from any host," execute this command when the SNMP service security setting is changed from "Accept SNMP packets from any host" to "Accept SNMP packets from these hosts."

(1) Synopsis

setsnmpsec

(2) Options

None

(3) Example

> setsnmpsec

(4) Output messages

· Normal termination

FJSVpsa: I 04200 Security setting for SNMP Service was completed.

· Abnormal termination

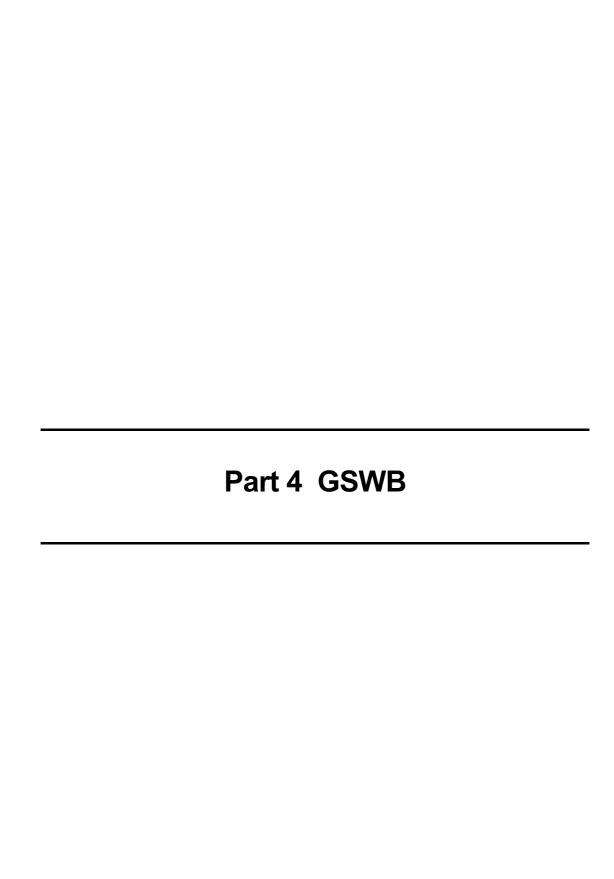
FJSVpsa: E 04201 Anerror occurred at the time of security setting for SNMP

Service.

(5) Notes

After you execute this command, you need to restart the SNMP Service.

6-20 C122-E003-02EN



CHAPTER 7 Web-UI Operations

The giga-bit switch board (GSWB) is connected to the MMB, which manages the entire server, via the IPMB over LAN method. It provides a unique switch configuration function in addition to the standard functions defined in the Intelligent Platform Management Interface (IPMI) through IPMI messages.

The Web user interface (Web-UI) is normally used for GSWB operations. However, the command line interface (CLI) such as a telnet connection or other connection can also be used.

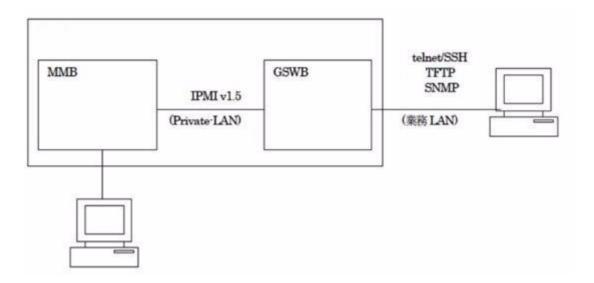


Figure 7.1 GSWB connections

• Web-UI

Functions equivalent to CLI functions can be performed with the Web-UI as the GUI. The following table lists the functions provided by the GSWB Web-UI.

Table 7.1 Functions

Function	Command type	Description
Log	Configuration	Sets the log level (message log only)
	definition	
	Operation	Displays/downloads the error log
		Displays/downloads the line log
		Displays/downloads the message log
		Displays/downloads the trap log
		Downloads logs in batch
Configuration definition	Configuration	Saves a configuration definition file (Running
management	definition	config)
	Operation	Restores a configuration definition
		Downloads a configuration definition
		Uploads a configuration definition
Firmware management	Operation	Uploads/installs firmware
File selection	Operation	Used to select a configuration definition at
		startup
		Used to select firmware for startup
Flow control	Configuration	Defines flow control
	definition	
Jumbo frame	Configuration	Configures jumbo frame settings
	definition	
Rate control	Configuration	Defines rate control
	definition	
Host	Configuration	Sets an IP address
	definition	Sets the default gateway
		Sets a unit name (host name)
MAC bridge	Configuration	Sets the aging timer
	definition	Adds/deletes a static address (VLAN-ID)
	Operation	Displays/clears a dynamic address
STP	Configuration	Specifies the STP setting (enable/disable)
	definition	Sets the bridge priority
		Sets the maximum aging time
		Sets the Hello time
		Sets the transfer delay timer
		Sets the port priority
		Sets the interface path cost
		Defines the BPDU filter
		Specifies the STP setting for the specified
		interface
	Operation	Displays the STP status
		Clears STP statistical information

7-2 C122-E003-02EN

Function	Command type	Description
VLAN	Configuration	Creates/deletes a VLAN
	definition	Configures access port settings
		Sets the membership mode (access/trunk)
Priority control	Configuration	Sets the priority of frames without tags
	definition	Maps user priorities and the Cos Queue
Port trunking	Configuration	Creates/deletes/adds a channel group
	definition	Defines load balancing
IGMP snooping	Configuration	Enables/disables IGMP snooping
	definition	Specifies the IGMP setting for a specific
		VLAN
		Configures multicast router port settings
		Configures layer-2 port settings
Port mirroring	Configuration	Specifies the monitored ports
	definition	Specifies the mirror port
Port configuration	Configuration	Displays the interface status
	definition	Enables/disables the interface
		Sets the port speed
Access restriction	Configuration	Sets network conditions to enable remote
	definition	connections
SNMP	Configuration	Sets the location
	definition	Sets the contact
		Sets the engine ID
		Specifies the connected user
		Specifies the MIB information acquisition/
		manipulation host
		Designates the trap notification destination
telnet	Configuration	Enables/disables telnet
	definition	Sets the console timeout time
ssh	Configuration	Enables/disables SSH
	definition	Creates/deletes an SSH key
		Sets the console timeout time

Common display of interface settings

The items that are set from an interface setting window depend on the interface:

• IO_Unit (back panel) setting window

The partition number and partition name are displayed.

Table 7.2 Display for an IO_Unit belonging to a partition

Partition		
Partition number	Partition name	

Table 7.3 Display for an IO Unit that does not belong to any partition

Partition		
Free	(blank)	

• Front panel (front panel/10G daughterboard) setting window

The port channel number is displayed.

Table 7.4 Display for a front panel that belongs to a channel group

port-channel		
Channel group number		

Table 7.5 Display for a front panel that does not belong to any channel group

	port-channel	
-		

• port-channel (port channel) setting window

The front panel interface numbers are displayed.

Table 7.6 Display for a port-channel with interfaces belonging to it

Front Panel		
Front Panel number,		

Table 7.7 Display for a port-channel with no interface belonging to it

Fr	ont Panel
-	

Partitions

The IO_Unit numbers of IO_Units belonging to a partition are displayed in a partition setting window.

7-4 C122-E003-02EN

Table 7.8 Display for a partition with IO_Units belonging to it

	IO_Unit
IO_Unit number,	

Note: If the partition setting is Off, "*" is displayed in front of the IO_Unit number.

Table 7.9 Display for a partition with no IO_Unit belonging to it

IO_Unit
-

Indication of whether an IO_Unit board is mounted

If no IO_Unit board is mounted, IO_Unit board settings cannot be configured. "Not-present" is displayed to indicate that no IO_Unit board is mounted.

If the partition setting is On, the interface of an IO_Unit cannot be specified.

Indication of whether a TenGigabitEthernet optional board is mounted

If no TenGigabitEthernet board is mounted on the GSWB, the board settings cannot be configured. "Not-present" is displayed in such cases.

Auto-Refresh

Auto-Refresh can automatically refresh the display on statistical information screens and other screens that can be refreshed. The [Refresh] button is displayed in the title area.

7.1 Web-UI menu configuration

The menu configuration depends on the mounted GSWBs and the user privilege. For example, if GSWB#1 is not mounted, no menu is displayed under GSWB#1. Also, different menus are displayed depending on the user privilege.

The following tables outline the Web-UI menus.

The abbreviations in the privilege columns mean the following:

- RW: The user can read and write in the window concerned.
- RO: The user can only read in the window concerned.
- N/A: The window and submenu concerned are not displayed.

GSWB-MENU	l	User privilege			
First level	Admin	CE	Operator	User	Remarks
GSWB#0					Displayed only if GSWB#0 is mounted
GSWB#1					Displayed only if GSWB#1 is mounted
Configuration Copy	RW	RW	N/A	N/A	Not displayed if the user privilege is Operator or User

Table 7.10 Web-UI menu configuration 1

GSWB#0 and GSWB#1 contain submenus.

"Switch > GSWB#0" or "Switch > GSWB#1" is displayed in the information area when [GSWB#0] or [GSWB#1], respectively, is clicked, and [GSWB#0] or [GSWB#1] is no longer displayed in the submenu area. Thus, the level immediately below GSWB#0 and GSWB#1 becomes the first level.

Table 7.11 Web-UI menu configuration 2

RW: Read/write permitted RO: Read-only N/A: Not displayed

GSWB-MENU		l	Jser p	rivileg	е		
	First level		Ac	CE	Q	J.	Remarks
	Second level		CE Admin	pera	User	Remarks	
		Third level	ر [perator		
Syste	System						GSWB unit settings
	Information		RO	RO	RO	RO	Display-only system information
	Host		RW	RW	RO	RO	

7-6 C122-E003-02EN

GSWB-MENU		User p	rivileg	je	
First level		CE			Demonstr
Second level	Admin	111	per	User	Remarks
Third level	7		Operator		
Upload Configuration	RW	RW	N/A	N/A	
Download	RW	RW	N/A	N/A	
Configuration					
Save Configuration	RW	RW	N/A	N/A	
Restore Configuration	RW	RW	N/A	N/A	
Active Image Change	RW	RW	RO	RO	
Error Log	RW	RW	N/A	N/A	Log display not permitted if the
					user privilege is User
Line Log	RW	RW	N/A	N/A	Log display not permitted if the
					user privilege is User
Message Log	RW	RW	N/A	N/A	Log display not permitted if the
					user privilege is User
Trap Log	RW	RW	N/A	N/A	Log display not permitted if the
					user privilege is User
Log Setting	RW	RW	N/A	N/A	
Log Download	RW	RW	N/A	N/A	Download not permitted if the
					user privilege is User
Management					
SNMP	DIII	DIII	D.O.	D.O.	
SNMP	RW	RW	RO	RO	
Community SNMP v3	DW	DW	DO	D.O.	
	RW	RW	RO	RO	
Configuration SNMP Trap	RW	RW	RO	RO	
Telnet	RW	RW	RO	RO	
SSH Status	RW	RW	RO	RO	
SSH Key Generate	RW	RW	N/A	N/A	
Remote Access	RW	RW	RO	RO	
Port Remote Access	IXVV	IXVV	KO	KO	
Port Configuration					Enables/disables a port and sets
Tort Configuration					the port speed
IO UNIT	RW	RW	RO	RO	nie port speed
Front Panel	RW	RW	RO	RO	
port-channel	RW	RW	RO	RO	
Port Status	RO	RO	RO	RO	Displays the current port status
Port Mirroring	100	100	10	IKO	Displays the current port status
Destination Port	RW	RW	RO	RO	
Source Port	RW	RW	RO	RO	
Source I oit	17.11	1011	110	110	

GSWB-M		Jser p	rivileg	je		
First level		Admin	CE			
Secon	Second level		Ш	Operator	User	Remarks
TI	Third level			ato		
Port Statistic	cs	RW	RW	RO	RO	The interface can be selected.
Flow Contro	ol					Flow control
IO U	NIT	RW	RW	RO	RO	
Front	Panel	RW	RW	RO	RO	
Partit	ion	RW	RW	RO	RO	
Rate Contro	1					Rate control
IO_U	NIT	RW	RW	RO	RO	
Front	Panel	RW	RW	RO	RO	
Partit	ion	RW	RW	RO	RO	
Jumbo Frame		RW	RW	RO	RO	
MAC Bridge						
Aging Time		RW	RW	RO	RO	
Static MAC	Address	RW	RW	RO	RO	
MAC Addre	ess Table	RW	RW	RO	RO	Clear operation permitted only if
						the user privilege is Admin or CE
Spanning Tree						
Global Setti	Global Setting		RW	RO	RO	
	Interface Setting					
IO_U	NIT	RW	RW	RO	RO	
	Panel	RW	RW	RO	RO	
	hannel	RW	RW	RO	RO	
Partit	ion	RW	RW	RO	RO	
STP Status		RO	RO	RO	RO	Displays the interface or bridge
						status. The target interface can be
						selected.
STP Statistic	cs	RW	RW	RO	RO	Displays interface or bridge
						statistical information. The target
						interface can be selected.
	VLAN		DIII	37/4	3.7/4	ATT ANT C
VLAN Con	VLAN Configuration		RW	N/A	N/A	VLAN information can be
All ANTI C		RW	DIV	D.O.	D.O.	referenced for setting values.
	VLAN Information		RW	RO	RO	
	Delete VLAN		RW	RO	RO	Nation VI AND ID
	Native VLAN IO UNIT		DW	DO	DO	Native VLAN ID
		RW	RW	RO	RO	
	Panel	RW	RW	RO	RO	
^	channel	RW	RW	RO	RO	
Partit	ion	RW	RW	RO	RO	

7-8 C122-E003-02EN

GSWB-MENU		Į	Jser p	rivileg	е	
First level Second level		Admin	CE	Operator	User	Remarks
	Third level	_		tor		
Priority Que	eueing					
Default Priority						Assigns the priority of frames without tags
	IO_UNIT	RW	RW	RO	RO	
	Front Panel	RW	RW	RO	RO	
	port-channel	RW	RW	RO	RO	
	Partition	RW	RW	RO	RO	
CoS Queue Map		RW	RW	RO	RO	
Channel Gro	oup	RW	RW	RO	RO	
IGMP Snoo	ping					IGMP Snooping
Globa	Global Setting		RW	RO	RO	
VLAN Setting		RW	RW	RO	RO	
MAC Address		RW	RW	RO	RO	
Partition		RW	RW	RO	RO	
Power Control		RW	RW	N/A	N/A	
Reset	Reset		RW	N/A	N/A	

7.2 GSWB Status Menu

7.2.1 GSWB Status window

Clicking the [Switch] menu displays the [GSWB Status] window. The GSWB status is displayed. If there is no relevant information, nothing is displayed in the window.

Reference: The displayed menus vary depending on the installed GSWBs and the user privilege. For example, if GSWB#1 is not installed, "Not-present" is displayed at [GSWB#1].



Figure 7.2 [GSWB Status] window

Table 7.12 Displayed and setting items in the [GSWB Status] window

Item	Description
Status	Status information:
	Online: Ready for operation
	• Starting: Starting (cannot be operated)
	Standby: Powered off
	Connection Error: GSWB connection failure
	• Get Status Error: GSWB status acquisition failure
	Config Error: Configuration definition error
	Hard Error: Hardware error
	Not present: Not installed

Table 7.13 Buttons in the [GSWB Status] window

Button	Description				
Help	Displays the Help window.				

(1) Menu operation

 $[Switch] \rightarrow [GSWB Status]$

7-10 C122-E003-02EN

(2) GUI operation

The GSWB status is displayed.

7.3 Configuration Copy Menu

7.3.1 Configuration Copy window

Clicking the [Configuration Copy] menu displays the [Configuration Copy] window. If two GSWBs (GSWB#0 and GSWB#1) are mounted, the settings of one GSWB can be copied to the other GSWB. However, the items that must not be the same between the GSWBs and the operation definitions as shown below are not copied:

- Configuration definitions: IP address, subnet mask, gateway address
- Operation definitions: SSH key

Note: This function is not displayed to users who logged in with the Operator or User privilege.

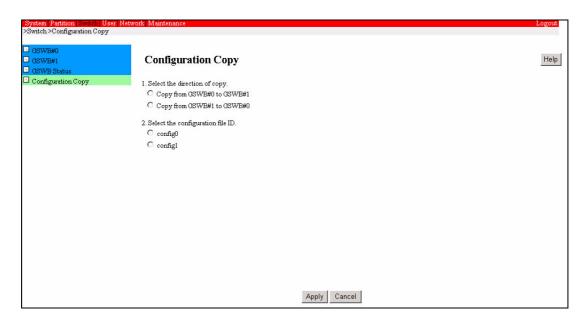


Figure 7.3 [Configuration Copy] window

7-12 C122-E003-02EN

Table 7.14 Displayed or setting item in the [Configuration Copy] window

Item	Description				
Select the direction of copy					
Copy from GSWB#0 to GSWB#1	Copies settings from GSWB#0 to GSWB#1.				
Copy from GSWB#1 to GSWB#0	Copies settings from GSWB#1 to GSWB#0.				
Select the configuration file ID					
config 0	config0 copies config 0				
config 1	config1 copies config 1				

Table 7.15 Buttons in the [Configuration Copy] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified value.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [Configuration Copy]$

(2) GUI operation

- Copying
 - 1 Select the copy source GSWB and copy destination GSWB from [Select the direction of copy], and specify the ID of the configuration definition file to be copied in [Select the configuration file ID].

 Since two GSWB configuration definitions (config0 and config1) can be
 - Since two GSWB configuration definitions (config0 and config1) can be saved, select which configuration definition file on the GSWB to copy.
 - 2 Click the [Apply] button.

Note:

- Before the switching operation can be performed based on the copied configuration definition file, you need to change the configuration in the [Active Image Change] window so that the configuration file is used at the time of startup, and then restart the GSWB.
- After the configuration definition file is copied, the specified configuration definition file comment will be "configuration copy."
- [Copy Source] is not selected on the initial display.

7.4 System Menu

The [System] menu is used to acquire and display system information.

7.4.1 Information window

The [Information] window displays device information according to whether [GSWB#0] or [GSWB#1] was selected. An asterisk (*) in front of an online/offline/ Config item indicates that it is the configuration definition file information or firmware used at startup.

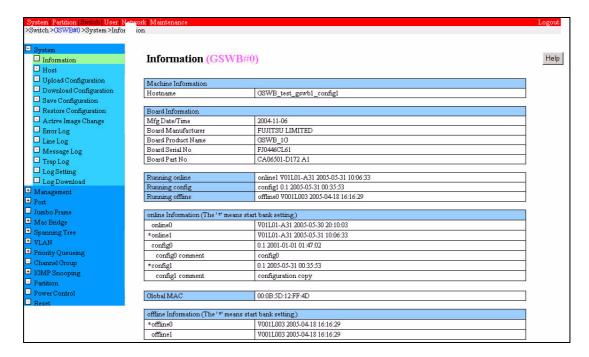


Figure 7.4 [Information] window

Table 7.16 Displayed and setting items in the [Information] window

Item	Description					
Machine Information						
Hostname	Device name					
Board Information						
Mfg Data/Time	Manufacturing date and time					
Board Manufacturer	Manufacturer's name					
Board Product Name	Product name					
Board Serial No	Board serial number					
Board Part No	Board part number					

7-14 C122-E003-02EN

Item	Description
Running online	Information on online firmware at startup
Running config	Configuration definition file information at startup
Running offline	Information on offline firmware at startup
online Information	
online0/1	Online firmware information
config0/1	Configuration definition file information. If no configuration
	definition file exists, "*** No File ***" is displayed, and if a
	configuration definition file error occurs, "*** Error File ***".
config0/1 comment	Comments (specified when the configuration definition file is
	saved) on the configuration definition file
Global Mac	MAC address of the GSWB host
offline Information	
offline0/1	Offline firmware information

Table 7.17 Button in the [Information] window

Button	Description
Help	Displays the Help window.

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [System] \rightarrow [Information]$

(2) GUI operation

Device information is displayed.

7.4.2 Host window

The [Host] window configures host settings. The IP address set in this window is used to make settings directly from a business LAN port. If no IP address is set, the field is blank (not 0).

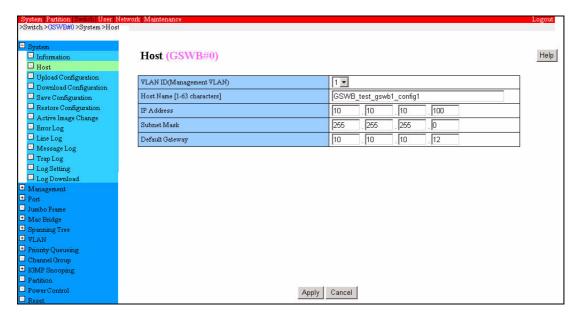


Figure 7.5 [Host] window

Table 7.18 Displayed and setting items in the [Host] window

Item	Description			
VLAN ID	Specify the VLAN ID of the VLAN to which the host belongs.			
	Select a defined VLAN ID ranging from 1 to 4094 (default: 1).			
Host Name	Specify a host name.			
	The first character must be an alphanumeric character.			
	Enter a character string consisting of up to 63 alphanumeric			
	characters and / # * (default: switch).			
IP Address	Specify the host IP address.			
	Enter values ranging from 0 to 255 (default: no value).			
Subnet Mask	Specify the subnet mask.			
	Enter values ranging from 0 to 255 (default: no value).			
Default Gateway	Specify the IP address of the default gateway.			
	Enter values ranging from 0 to 255 (default: no value).			

7-16 C122-E003-02EN

Table 7.19 Buttons in the [Host] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Host]$

(2) GUI operation

- Setting
 - 1 Select a defined VLAN ID from the pull-down menu.
 - 2 Enter an IP address and a subnet mask, and specify the default gateway.
 - 3 To change the host name, enter a new host name.
 - 4 Click the [Apply] button.
- Deletion
 - 1 Delete the value in each field so that the field is blank.
 - 2 Click the [Apply] button.

7.4.3 Upload Configuration window

The [Upload Configuration File] window transfers the configuration definition file on a remote PC to the GSWB. The displayed window varies depending on whether the user logged in with the Admin privilege or CE privilege.

If a file other than the GSWB configuration definition file is specified for uploading from a remote PC, an error message is displayed.

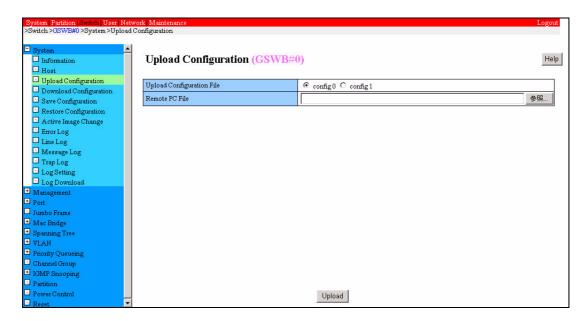


Figure 7.6 [Upload Configuration] window (Admin privilege)

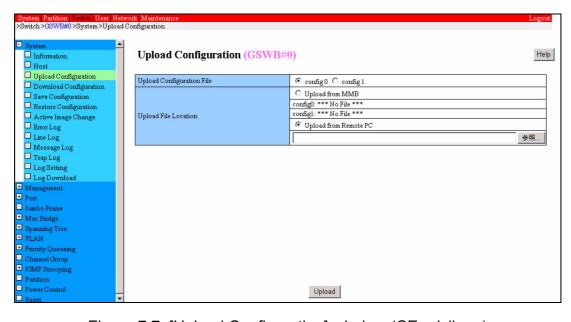


Figure 7.7 [Upload Configuration] window (CE privilege)

7-18 C122-E003-02EN

Table 7.20 Displayed and setting items in the [Upload Configuration] window

Item	Description
Upload Configuration	Select the file to be uploaded:
File	• config0 (default): Uploads config0.
	• config1: Uploads config1.
Remote PC File	Specify a file on a remote PC.
(for Admin privilege)	
Upload File Location	Specify the file to be uploaded:
(for CE privilege)	Upload from MMB: Uploads the specified configuration
	definition file stored on the MMB:
	config0: config0 file version/date
	config1: config1 file version/date
	If there is no file, "** No File **" is displayed.
	• Upload from Remote PC (default): Uploads a file from a remote
	PC.

Table 7.21 Buttons in the [Upload Configuration] window

Button	Description
Help	Displays the Help window.
Browse	Used to specify a file path.
Upload	Uploads a file.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Upload Configuration]$

(2) GUI operation

- Upload from a remote PC (Admin privilege)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Enter the path of the configuration definition file directly in the [Remote PC File] field, or select the file after clicking the [Browse...] button.
 - 3 Click the [Upload] button.
 - 4 Click [OK] in the completion notification window.
- Upload from a remote PC (CE privilege only)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Select [Upload from Remote PC].

- 3 Enter the path of the configuration definition file directly, or select the file after clicking the [Browse...] button.
- 4 Click the [Upload] button.
- 5 Click [OK] in the completion notification window.
- Upload of the configuration definition file automatically saved on the MMB (CE privilege only)
 - 1 Specify [config0] or [config1] for the configuration definition file to be uploaded.
 - 2 Select [Upload from MMB].
 - 3 Click the [Upload] button.
 - 4 Click [OK] in the window displaying "Configuration Upload Complete."

7.4.4 Download Configuration window

The [Download Configuration File] window saves the configuration definition file from the GSWB to a remote PC. If no configuration definition has been saved and no configuration definition file exists, "Error: Can't find the configuration file. Please save the configuration file previously." is displayed.

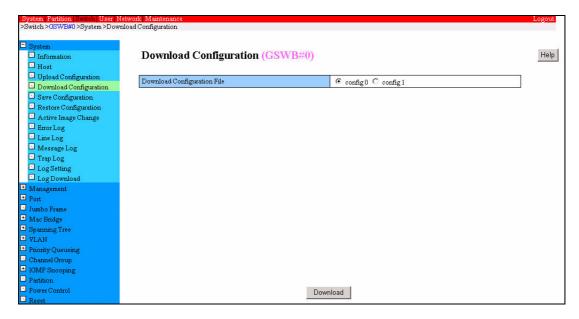


Figure 7.8 [Download Configuration] window

7-20 C122-E003-02EN

Table 7.22 Displayed or setting item in the [Download Configuration] window

Item	Description
Download	Specify the file to be downloaded:
Configuration File	• config0 (default): Downloads config0.
	• config1: Downloads config1.

Table 7.23 Buttons in the [Download Configuration] window

Button	Description
Help	Displays the Help window.
Download	Downloads a file.
	The default log file name for the download is "config0" or
	"config1" (the browser may add a subscript). The file path and file
	name used to save a file to a remote PC can be specified.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Download Configuration]$

(2) GUI operation

- 1 Specify the file to be downloaded.
- 2 Click the [Download] button.
- 3 Click [Save] in the [Download file] window.
- 4 Specify the file path and file name used to save the file to a remote PC.

7.4.5 Save Configuration window

The [Save Configuration] window saves Running Config (definition currently in use) of the GSWB. Either [config0] or [config1] must be specified as the save destination for Running Config. Comments can be added to the configuration definition file.

Note: Entered setting values for the GSWB are not saved unless they are explicitly saved. If they are not saved, the setting values are cleared when the GSWB is powered off or restarted.

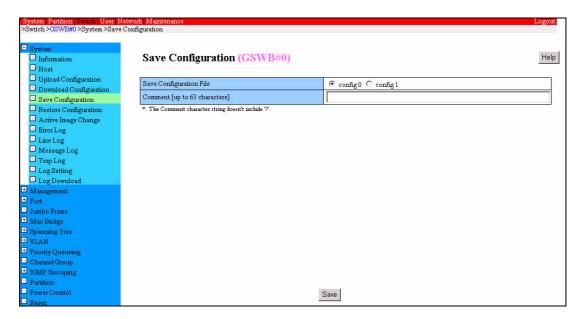


Figure 7.9 [Save Configuration] window

Table 7.24 Displayed and setting items in the [Save Configuration] window

Item	Description
Save Configuration File	Select the configuration definition file to be saved:
	- config0 (default): Saves config0.
	- config1: Saves config1.
Comment	Enter a comment to be embedded in the configuration definition
	file. (The comment is a string of 63 or fewer one-byte
	alphanumeric or symbol (except ?) characters.)

Table 7.25 Buttons in the [Save Configuration] window

Button	Description
Help	Displays the Help window.
Save	Saves a file.

7-22 C122-E003-02EN

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Save Configuration]$

(2) GUI operation

- Saving
 - 1 Specify [config0] or [config1] as the save destination for Running Config.
 - 2 To add a comment to the configuration definition file, enter the comment in [Comment].
 - 3 Click the [Save] button.
 - 4 Click [OK] in the completion notification window.

7.4.6 Restore Configuration window

The [Restore Configuration] window restores an existing configuration definition file or a configuration definition file uploaded from a remote PC to an area referenced by the GSWB at startup.

The GSWB must be restarted to validate the restored configuration definition file.

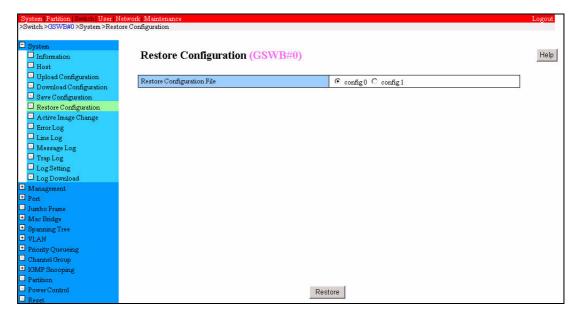


Figure 7.10 [Restore Configuration] window

Table 7.26 Displayed or setting item in the [Restore Configuration] window

Item	Description
Restore Configuration	Select the configuration definition file to be restored:
File	• config0 (default): Restores config0.
	• config1: Restores config1.

Table 7.27 Buttons in the [Restore Configuration] window

Button	Description
Help	Displays the Help window.
Restore	Restores a file.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Restore Configuration]$

(2) GUI operation

- Restoration
 - 1 Specify the configuration definition file to be restored by selecting either [config0] or [config1].
 - 2 Click the [Restore] button.
 - 3 Click [OK] in the completion notification window.
 - 4 If you want the restored configuration definition reflected on operation, change the settings in the [Active Image Change] window, and then reboot the GSWB in the [Reset] window.

7-24 C122-E003-02EN

7.4.7 Active Image Change window

The [Active Image Change] window changes firmware and the configuration definition file. Settings that are enabled in [Current Setting] are also enabled in the initial display of this window.

The following firmware can be specified in the window:

- [Offline Firmware]: Software for hardware initialization, hardware initial diagnosis, and online firmware loading and startup
- [Online Firmware]: General name of different types of software groups used for GSWB operations

The GSWB must be restarted to reflect any changes. A message prompting restart of the GSWB is displayed when the [Apply] button is clicked.

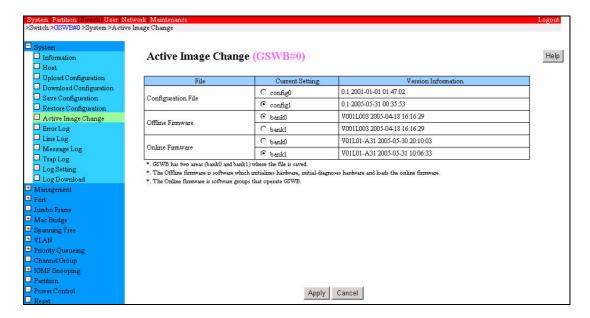


Figure 7.11 [Active Image Change] window

Table 7.28 Displayed and setting items in the [Active Image Change] window

Item	Description
Configuration File	Specify the configuration definition file that is used at GSWB startup:
	• config0 • config1
Boot Firmware	Specify the offline firmware bank that is used at GSWB startup: • bank0 • bank1

Item	Description
System Firmware	Specify the online firmware bank that is used at GSWB startup:
	• bank0
	• bank1

Table 7.29 Buttons in the [Active Image Change] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Active Image Change]$

(2) GUI operation

- · Changing the active
 - 1 Select [config] or [bank] from [Current Setting].
 - 2 Click the [Apply] button.
 - 3 When you click the [OK] button in the [It is necessary to reboot GSWB for the reflection of setting. GSWB Reboot Now?] window, GSWB rebooting begins. If you do not want to reboot the GSWB, click the [Cancel] button.

7-26 C122-E003-02EN

7.4.8 Error Log window

The [Error Log] window displays the log in the event of a reboot or panic.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

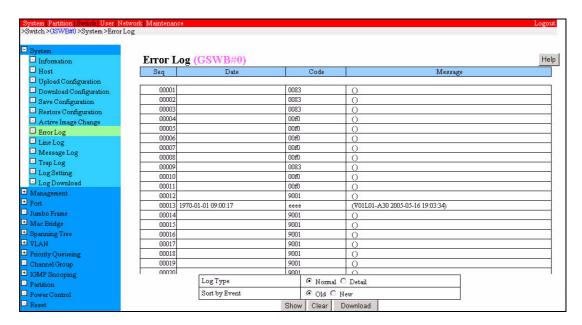


Figure 7.12 [Error Log] window (standard display)

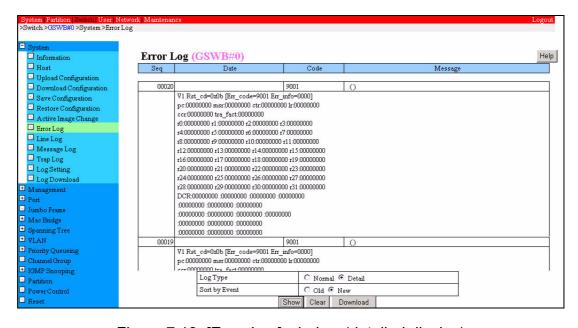


Figure 7.13 [Error Log] window (detailed display)

Table 7.30 Displayed and setting items in the [Error Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
ID	Log number
Message	Firmware version/error messages
Log Type	Select the log display type:
	Normal (default): Normal log display
	Detail: Detailed display
Sort by Event	Select the log display order:
	• Old (default): Displays the log in chronological order.
	• New: Displays the log in reverse chronological order.

Table 7.31 Buttons in the [Error Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: error.log (The browser
	may add a subscript.)

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Error Log]$

(2) GUI operation

- · Log display
 - 1 In [Log Type], set [Detail] to use the detailed log display or [Normal] to use the normal log display. Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] in the confirmation window clears all log items.
- · Log download
 - 1 Specify a value in [Log Type].
 - 2 Click the [Download] button. Log items are saved using [Detail] in [Log Type] and [Old] in [Sort by Event].

7-28 C122-E003-02EN

7.4.9 Line Log window

The [Line Log] window displays the log showing whether links are established. The log of each interface is displayed.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

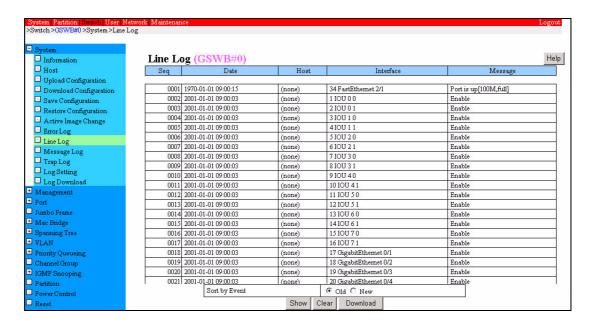


Figure 7.14 [Line Log] window

Table 7.32 Displayed and setting items in the [Line Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Host	Host name
Interface	Interface information
Message	Line message
Sort by Event	Specify the log display order:
	• Old (default): Displays the log in chronological order.
	• New: Displays the log in reverse chronological order.

Table 7.33 Buttons in the [Line Log] window

Button	Description
Help	Displays the Help window.

Button	Description
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: line.log (The browser
	may add a subscript.)

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Line Log]$

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] in the confirmation window clears all log items.
- Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

7-30 C122-E003-02EN

7.4.10 Message Log window

The [Message Log] window displays the message log.

Note: This window is not displayed to users who logged in with the Operator and User privilege.

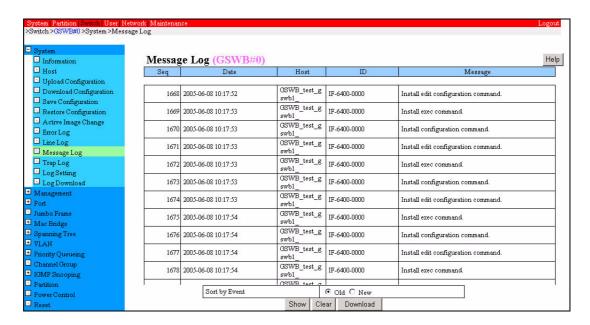


Figure 7.15 [Message Log] window

Table 7.34 Displayed and setting items in the [Message Log] window

Item	Description
Seq	Sequence number
Date	Collection date/time
Host	Host name
ID	Log number
Message	Message
Sort by Event	Specify the log display order:
	• Old (default): Displays the log in chronological order.
	• New: Displays the log in reverse chronological order.

Table 7.35 Buttons in the [Message Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.
Download	Downloads the log. Default log file name: message.log (The
	browser may add a subscript.)

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Message Log]$

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] in the confirmation window clears all log items.
- Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

7-32 C122-E003-02EN

7.4.11 Trap Log window

The [Trap Log] window displays the trap log.

Note: This window is not displayed to users who logged in with the Operator and the User privilege.

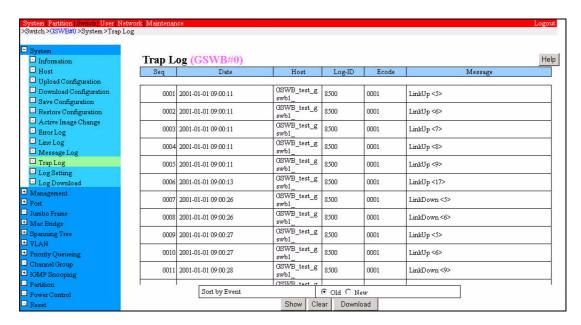


Figure 7.16 [Trap Log] window

Table 7.36 Displayed and setting items in the [Trap Log] window

Item	Description	
Seq	Sequence number	
Date	Collection date/time	
Host	Host name	
Log-ID	Log ID	
Ecode	Error code	
Message	Error message	
Sort by Event	Specify the log display order:	
	Old (default): Displays the log in chronological order.	
	• New: Displays the log in reverse chronological order.	

Table 7.37 Buttons in the [Trap Log] window

Button	Description
Help	Displays the Help window.
Show	Displays the log.
Clear	Clears the log.

Button	Description	
Download	Downloads the log. Default log file name for download: trap.log	
	(The browser may add a subscript.)	

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Trap Log]$

(2) GUI operation

- Log display
 - 1 Specify the display order in [Sort by Event].
 - 2 Click the [Show] button.
- Log clearing
 - 1 Click the [Clear] button.
 - 2 Clicking [OK] in the confirmation window clears all log items.
- · Log download
 - 1 Click the [Download] button. Log items are saved using [Old] in [Sort by Event].

7.4.12 Log Setting window

The [Log Setting] window enables and disables message log collection, specifies the collection level of the message log, and specifies the log transfer destination.

Note: This window cannot be displayed or otherwise used by users who logged in with the Operator and User privilege.

seq	date		hostname	m	essage		
0233	2001-01-01	09:15:43	switch	:	IF-6400-0000	Install	exec command.
0234	2001-01-01	09:15:43	switch		IF-6400-0000	Install	configuration command.
0235	2001-01-01	09:15:43	switch	:	IF-6400-0000	Install	edit configuration command
•							
0236	2001-01-01	09:15:43	switch	:	IF-6400-0000	Install	exec command.
0237	2001-01-01	09:15:43	switch	:	IF-6400-0000	Install	configuration command.
0238	2001-01-01	09:15:43	switch	:	IF-6400-0000	Install	edit configuration command
0239	2001-01-01	09:15:44	switch	:	IF-6400-0000	Install	exec command.
0240	2001-01-01	09:15:44	switch	:	IF-6400-0000	Install	configuration command.
0241	2001-01-01	09:15:44	switch	:	IF-6400-0000	Install	edit configuration command
0242	2001-01-01	09:15:44	switch	:	IF-6400-0000	Install	exec command.
0243	2001-01-01	09:15:44	switch		IF-6400-0000	Install	configuration command.
0244	2001-01-01	09:15:44	switch		IF-6400-0000	Install	edit configuration command

Figure 7.17 Example of the message log file

7-34 C122-E003-02EN

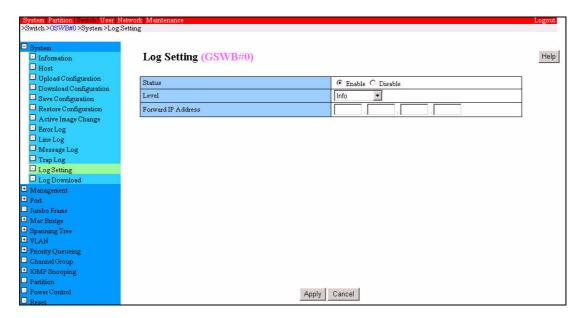


Figure 7.18 [Log Setting] window

Table 7.38 Displayed and setting items in the [Log Setting] window

Item	Description		
Status	Specify enable or disable for message log collection:		
	• Enable (default): Enables message log collection.		
	Disable: Disables message log collection.		
Level	Specify the collection level of the message log:		
	Debug: Debug message		
	Info (default): General report message		
	Notice: Notification message		
	Warning: Error message		
	Error: Serious error message		
	Critical: Fatal error message		
	• Alert: Message indicating that an immediate repair is required		
	Emergency: Message indicating a serious situation or an		
	unstable system		
Forward IP Address	Specify the IP address of the log transfer destination server:		
	Octet range: 0 to 255 (default: no value)		

Table 7.39 Buttons in the [Log Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Log Setting]$

(2) GUI operation

- · Message log collection
 - 1 Specify [Enable] in [Status].
 - 2 Select the collection level of the message log in [Level].
 - 3 Click the [Apply] button.
- Log transfer
 - 1 Specify an IP address in [Forward IP Address].
 - 2 Click the [Apply] button.
- Transfer IP address deletion
 - 1 Delete all entries in the IP address field (so that it is blank).
 - 2 Click the [Apply] button.

7.4.13 Log Download window

The [Log Download] window downloads archived log files. The log files include the error log file, line log file, message log file, and trap log file. These files can all be downloaded in one operation.

Note: This window is not displayed to users who logged in with the Operator and User privilege.

- The default log file names are log gswb0.tar.gz and log gswb1.tar.gz.
- Each log file can be individually downloaded from its own window.
- TAR is used to archive each log file.

The following figure shows the internal configuration of the archived files.

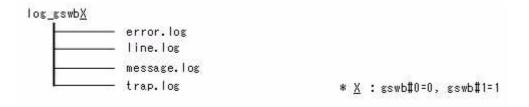


Figure 7.19 Internal configuration of the archived files

7-36 C122-E003-02EN



Figure 7.20 [Log Download] window

Table 7.40 Displayed or setting item in the [Log Download] window

Item	Description
If you click "Download"	Clicking the [Download] button downloads all log files.
button, you can get all of	Each log file can be individually downloaded from its own
logfiles(xxxxx Byte).	window.
Please click each log	
menu, if you would like	
to download each	
logfile.	

Table 7.41 Buttons in the [Log Download] window

Button	Description
Help	Displays the Help window.
Download	Downloads the log files.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [System] \rightarrow [Log Download]$

(2) GUI operation

- · Batch download
 - 1 Click the [Download] button.

7.5 Management Menu

7.5.1 SNMP menu

The [SNMP] menu is used to configure SNMP agent settings.

7.5.1.1 SNMP Community window

The [SNMP Community] window specifies the host that acquires and manipulates MIB information using SNMP version 1 or SNMP version 2. Up to eight hosts can be specified.

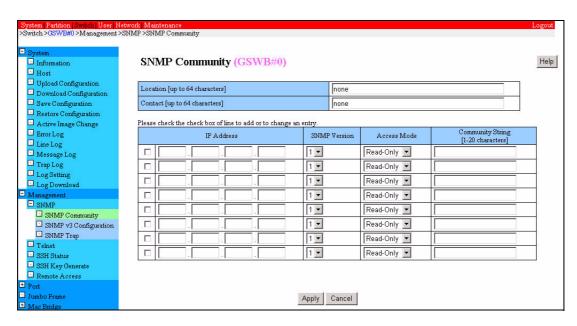


Figure 7.21 [SNMP Community] window

7-38 C122-E003-02EN

Table 7.42 Displayed and setting items in the [SNMP Community] window

Item	Description		
Location	Specify the installation location of a local device.		
	Enter a character string consisting of up to 64 en-size		
	alphanumeric characters and symbols, which may include ' @ .		
	and ".		
	Default: none		
Contact	Specify the contact information about a local device.		
	Enter a character string consisting of up to 64 en-size		
	alphanumeric characters and symbols, which may include ' @ .		
	and ".		
	Default: none		
IP Address	Specify the host IP address (target receiver).		
	Enter values ranging from 0 to 255.		
	Default: No value		
SNMP Version	Specify the version (1 or 2):		
	• 1: Security model with the lowest security		
	• 2: Security model with the second lowest security		
Access Mode	Select an access mode:		
	• Read-Only: Sets the access privilege to the MIB tree to Read-		
	Only.		
	• Read-Write: Sets the access privilege to the MIB tree to Read/		
	Write.		
Community String	Enter a community string, whose function is similar to a password.		
	Enter a character string consisting of up to 20 en-size		
	alphanumeric characters.		

Table 7.43 Buttons in the [SNMP Community] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [Management] \rightarrow [SNMP] \rightarrow [SNMP Community]$

(2) GUI operation

- SNMP Agent setting
 - 1 Specify values in [Location] and [Contact].
 - 2 Click the [Apply] button.

- SNMP host addition or modification
 - 1 Check the check box of the host to be added or modified.
 - 2 Specify the IP address, SNMP version, access privilege, and community string.
 - 3 Click the [Apply] button.
- SNMP host deletion
 - 1 Check the check box of the host to be deleted.
 - 2 Delete the displayed IP address from the [IP Address] field.
 - 3 Click the [Apply] button.

7.5.1.2 SNMP 3 Configuration window

The [SNMP version 3 Configuration] window specifies the user to be connected using SNMP v3 from the server side. Up to eight users can be registered. If v3 is not used, no Engine-ID need be specified.

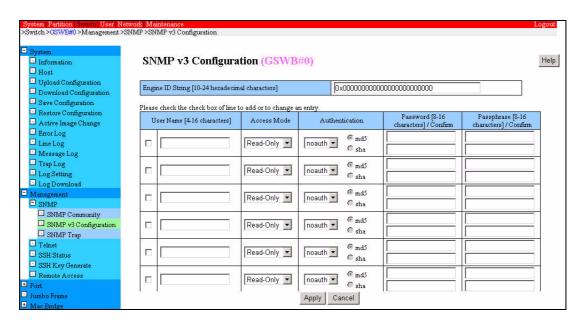


Figure 7.22 [SNMP 3 Configuration] window

7-40 C122-E003-02EN

Table 7.44 Displayed and setting items in the [SNMP 3 Configuration] window

Item	Description
Engine ID String	"0x" is not included in the number of digits and may be omitted. If
	the entered string consists of 23 or fewer digits, the engineID value
	is padded with "0" up to the 24th digit.
	Enter a hexadecimal string consisting of 10 to 24 digits.
	Default: 0x00000000000000000000000000000000000
User Name	Enter a user name.
	The user name is a character string consisting of 4 to 16 en-size
	alphanumeric characters, which may include - and
Access Mode	Set the access mode:
	• Read-Write: User privilege. The user has read/write permission.
	• Read-Only: User privilege. The user has read-only permission.
Authentication	Specify whether passwords are used for the authentication method:
	Noauth: An authentication level is set. Password-based
	authentication and encryption are not performed. (However,
	authentication by user name is performed.)
	Auth: Authentication uses passwords. Encryption is not
	performed.
	Priv: Password-based authentication and encryption are
	performed.
	 md5: MD5 is selected as the hash function for password
	encryption.
	Sha: SHA is selected as the hash function for password
	encryption.
Password	Enter the authentication password.
	The password is a character string consisting of 8 to 16 en-size
	alphanumeric characters.
Confirm	Enter the authentication password for confirmation.
	The password is a character string consisting of 8 to 16 en-size
	alphanumeric characters.
Passphrase	Enter the keyword for packet encryption.
	The keyword is a character string consisting of 8 to 16 en-size
	alphanumeric characters.
Confirm	Enter the keyword for packet encryption for confirmation.
	The keyword is a character string consisting of 8 to 16 en-size
	alphanumeric characters.

Table 7.45 Buttons in the [SNMP 3 Configuration] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [SNMP] \rightarrow [SNMP version 3 Configuration]

(2) GUI operation

- Engine ID change
 - 1 To change the Engine ID, specify a hexadecimal string consisting of at least 10 characters.
 - 2 Click the [Apply] button.
- SNMP user addition or modification
 - 1 Check the check box of the user to be added or whose settings are to be modified.
 - 2 Specify the user name, user privilege, and authentication level.
 - 3 If the authentication level is not [noauth], specify the hash function. Specify a password for [auth] and a password and passphrase for [priv].
 - 4 Click the [Apply] button.
- SNMP user deletion
 - 1 Check the check box of the user to be deleted.
 - 2 Delete the displayed user name from [User Name].
 - 3 Click the [Apply] button.

7-42 C122-E003-02EN

7.5.1.3 SNMP Trap window

The [SNMP Trap] window enables transmission of traps to the selected host. Up to eight trap transmission destinations can be registered.

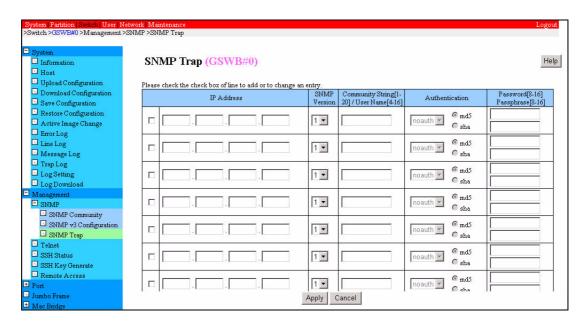


Figure 7.23 [SNMP Trap] window

Table 7.46 Displayed and setting items in the [SNMP Trap] window

Item	Description
IP Address	Trap notification destination
SNMP Version	SNMP version
	• 1: Send version-1 SNMP traps. You need to set the Community
	String to be used for server authentication.
	• 2: Send version-2 SNMP traps. You need to set the Community
	String to be used for server authentication.
	• 3: Send version-3 SNMP traps. You need to set the
	authentication level.
Community String/ User	Community string or user name
	Specify the Community String or User Name.
	• Community String: 20 or fewer one-byte alphanumeric
	characters
	• User Name: 4-16 one-byte alphanumeric characters or symbols
	(- and _)
Delete	To delete an SNMP Trap, check its check box.

Item	Description
Authentication	Authentication method:
	noauth: An authentication method is set. Password-based
	authentication and encryption are not performed. (However,
	authentication by user name is performed.)
	• auth: Authentication uses passwords. Encryption is not performed.
	priv: Password-based authentication and encryption are performed.
	• md5: MD5 is selected as the hash function for password encryption.
	• sha: SHA is selected as the hash function for password encryption.
Password	Authentication password.
	Character string: 8 to 16 en-size alphanumeric characters
Passphrase	Passphrase (keyword for packet encryption).
	Character string: 8 to 16 en-size alphanumeric characters

Table 7.47 Buttons in the [SNMP Trap] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [SNMP] \rightarrow [SNMP Trap]$

(2) GUI operation

- SNMP Trap addition or modification
 - 1 Check the check box of the SNMP Trap to be added or modified.
 - 2 Specify the IP address and SNMP version.
 - 3 The setting method is as follows:
 - If you select SNMP version 1 or 2, specify [Community String].
 - If you select SNMP version 3, Specify [User Name] and [Authentication].
 - If you select [auth] or [priv] for [Authentication], select [sha] and [md5]. Then enter the password if you select [auth] or enter the password and passphrase if you select [priv].

4 Click the [Apply] button.

7-44 C122-E003-02EN

- SNMP Trap deletion
 - 1 Check the check box corresponding to the transmission destination of the trap to be deleted.
 - 2 Delete the IP address from the [IP Address] field.
 - 3 Click the [Apply] button.

7.5.2 Telnet window

The [Telnet] window configures telnet settings. The timeout time setting in [Timeout] is shared by telnet and SSH.

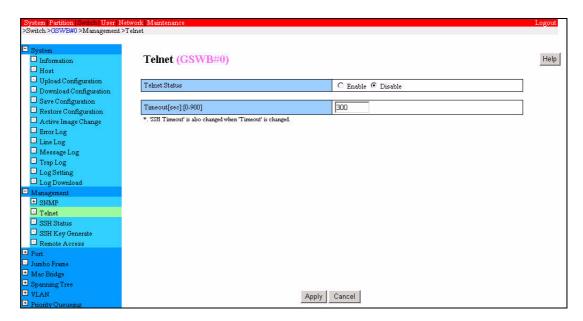


Figure 7.24 [Telnet] window

Table 7.48 Displayed and setting items in the [Telnet] window

Item	Description
Telnet Status	Specify enable or disable for telnet.
	Enable: Enables telnet.
	Disable (default): Disables telnet.
Timeout	Specify the timeout time of the console (local console, telnet, ssh).
	If 0 is set, the connection is not terminated.
	Time value range: 0 to 900 s (default: 300)

Table 7.49 Buttons in the [Telnet] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [Telnet]$

(2) GUI operation

- Setting
 - 1 Specify [Enable] in [Status].
 - 2 To change the timeout time for telnet, specify a new value in the input field.
 - 3 Click the [Apply] button.

7.5.3 SSH Status window

The [SSH Status] window enables the ssh server using the specified protocol.

Before enabling the ssh server, a key file must be created (see Section 7.5.4, "SSH Key Generate window").

The timeout time in [Timeout] is shared with the telnet server setting window.

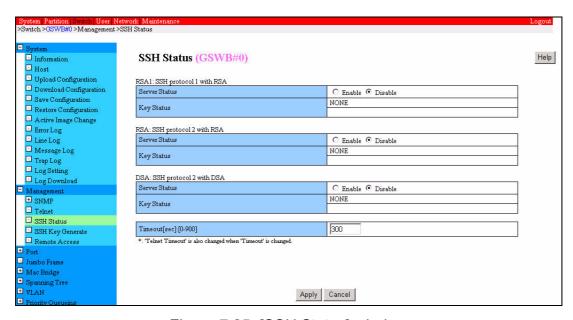


Figure 7.25 [SSH Status] window

7-46 C122-E003-02EN

Table 7.50 Displayed and setting items in the [SSH Status] window

Item	Description
	Specify enable or disable for ssh:
	• Enable: Enables the ssh server using the specified protocol.
	Disable (default): Disables ssh.
Key Status	Key status:
	None: No key is generated.
	• 1024: A 1024-bit key is generated.
	• 2048: A 2048-bit key is generated.
	To delete a key, check its [Delete] check box.
Timeout	Specify the timeout time of the console (telnet, ssh). If 0 is set, the
	connection is not terminated.
	Time value range: 0 to 900 (default: 300)

Table 7.51 Buttons in the [SSH Status] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [SSH Status]$

(2) GUI operation

- Setting
- 1 Specify values for the ssh servers in the [SSH Server Status] window. If no key is generated, however, [Enable] cannot be selected.

Remarks:

If no key has been generated and [Enable] is specified, the status does not become [Enable] until a key is generated.

- 2 Click the [Apply] button.
- · Key deletion
 - 1 Check the [Delete] check box of the key.
 - 2 Click the [Apply] button.

Note: If the server status is [Enable], no key can be deleted. To delete a key in such cases, change the server status to [Disable], and then check the [Delete] check box of the key.

7.5.4 SSH Key Generate window

The [SSH Key Generate] window generates keys of the specified protocol. Since no key can be generated for a protocol under which the ssh server is enabled, [SSH Protocol] does not allow you to select a protocol under which the ssh server is enabled.

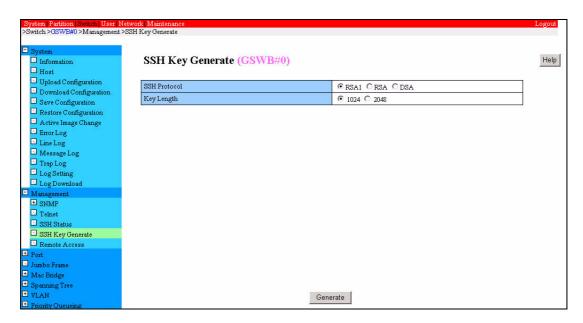


Figure 7.26 [SSH Key Generate] window

Table 7.52 Displayed and setting items in the [SSH Key Generate] window

Item	Description
SSH Protocol	Select the SSH protocol:
	RSA1: Generates an RSA1 key.
	RSA: Generates an RSA key.
	DSA: Generates a DSA key.
Key	Select the number of bits in a key:
	• 1024 (default): Generates a key with 1024 bits.
	• 2048: Generates a key with 2048 bits.

Table 7.53 Buttons in the [SSH Key Generate] window

Button	Description
Help	Displays the Help window.
Generate	Generates a key.

7-48 C122-E003-02EN

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [SSH Key Generate]$

(2) GUI operation

- Generation
 - 1 Specify the protocol and the number of bits in the key.
 - 2 Click the [Generate] button.
 - 3 The [SSH Key Generate (In Progress)] window is displayed when key generation of key starts. To cancel key generation while it is in progress, click the [Cancel] button.
 - 4 The completion confirmation window is displayed when key generation is completed. Clicking the [OK] button displays the initial [SSH Key Generate] window.

7.5.5 Remote Access window

The [Remote Access] window specifies the host or network conditions under which remote connections are allowed. You can define up to 100 entries for condition definitions.

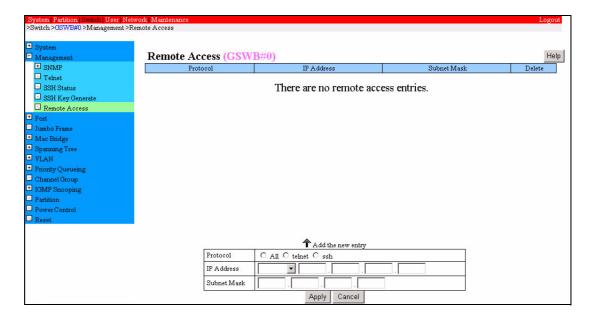


Figure 7.27 [Remote Access] window

Table 7.54 Displayed and setting items in the [Remote Access] window

Item	Description
Protocol	Protocol
IP Address	IP address
Subnet Mask	Subnet mask
Delete	To delete a setting, check its check box.
Add the New Entry	
Protocol	Specify a protocol:
	All: Specifies all protocols.
	• telnet: Specifies telnet.
	• ssh: Specifies ssh.
IP Address	Specify an IP address:
	All: Specifies all IP addresses.
	Host: Specify host addresses to be permitted.
	Network: Specify network addresses to be permitted.
	If you select Host or Network, specify the IP or network
	addresses that are permitted for remote connection, in the range
	from 0 to 255.
Subnet Mask	If a specific host IP address is specified in [IP address], no subnet
	mask need be specified. A subnet mask is required for a specific

Table 7.55 Buttons in the [Remote Access] window

network. Octet range: 0 to 255

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Management] \rightarrow [Remote Access]$

(2) GUI operation

- Setting
 - 1 Select the protocol that is responsible for permitting access and the IP address or network address specification method.
 - 2 If you select [Host] for [IP Address], specify the host address in the address field. If you select [Network], specify the network address and subnet mask.
 - 3 Click the [Apply] button.

7-50 C122-E003-02EN

• Deletion

- 1 Check the appropriate [Delete] check box (multiple check boxes can be checked).
- 2 Click the [Apply] button.

7.6 Port Menu

The [Port] menu is used to display and configure port settings.

7.6.1 Port Configuration window

The [Port Configuration] window displays the interface status and specifies the interface communication speed. The communication speeds of IO_Units 00 to 71, 10GigabitEthernet 1/1 to 1/2, and port-channels cannot be specified.

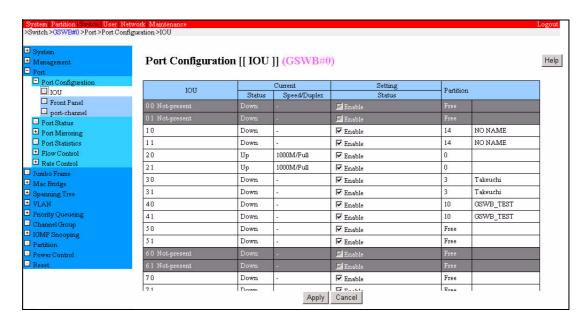


Figure 7.28 [Port Configuration (IO_Unit)] window

7-52 C122-E003-02EN

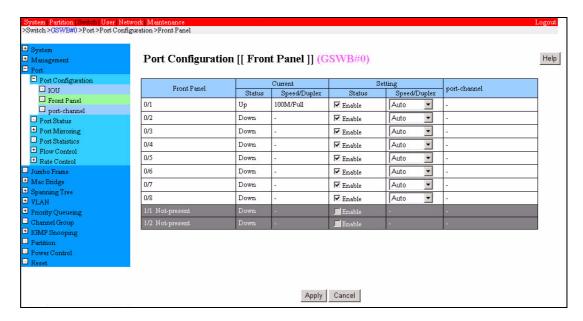


Figure 7.29 [Port Configuration (Front Panel)] window

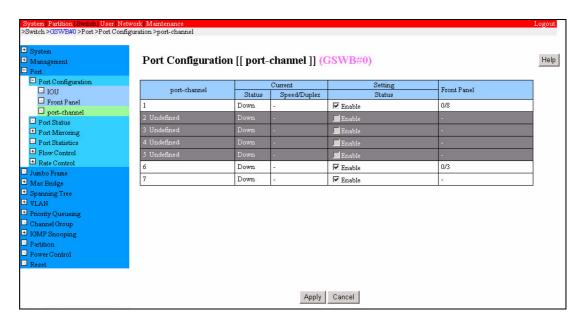


Figure 7.30 [Port Configuration (port-channel)] window

Table 7.56 Displayed and setting items in the [Port Configuration] window

Item	Description
Current: Current setting	S
Status	Current status:
	UP: A link is established.
	Down: The link is broken.
Speed/Duplex	Current operating speed and Duplex state:
	• 10M/Full: The port is in full-duplex operation at 10 Mbps.
	• 10M/Half: The port is in half-duplex operation at 10 Mbps.
	• 100M/Full: The port is in full-duplex operation at 100 Mbps.
	• 100M/Half: The port is in half-duplex operation at 100 Mbps.
	• 1000M/Full: The port is in full-duplex operation at 1000 Mbps.
	• -: The link is broken.
	Reference: The port-channel operation speed is the sum of the
	operation speeds of interfaces comprising the port-
	channel.
Setting: Setting	
Status	Specify enable or disable for the interface:
	• Enable: The interface is enabled when this option setting is on
	and disabled when it is off (the default setting is on).
Speed/Duplex	Specify the operating speed and Duplex state:
	• 10M/Full: The port is set for full-duplex operation at 10 Mbps.
	• 10M/Half: The port is set for half-duplex operation at 10 Mbps.
	• 100M/Full: The port is set for full-duplex operation at 100 Mbps.
	• 100M/Half: The port is set for half-duplex operation at 100
	Mbps.
	Auto (default): The port automatically detects the appropriate
	setting.

Table 7.57 Buttons in the [Port Configuration] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Configuration]$

7-54 C122-E003-02EN

(2) GUI operation

- Setting
 - 1 Turn on [Enable] to enable the interface.
 - 2 Specify a value for a front panel port in [Speed/Duplex].
 - 3 Click the [Apply] button.

7.6.2 Port Status window

The [Port Status] window displays the interface status and communication speed.

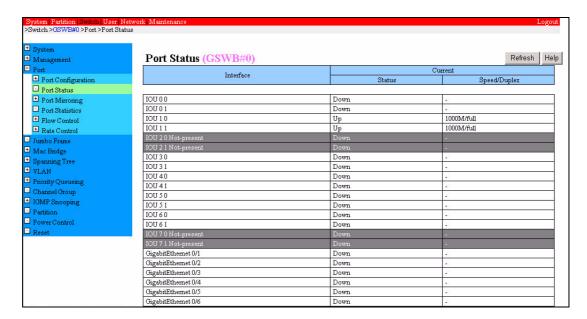


Figure 7.31 [Port Status] window

Table 7.58 Displayed and setting items in the [Port Status] window

Item	Description
Interface	Interface
Current: Current status	
Status	Current status:
	UP: A link is established.
	Down: The link is broken.
Speed/Duplex	Current operating speed and Duplex state:
	• 10M/Full: The port is in full-duplex operation at 10 Mbps.
	• 10M/Half: The port is in half-duplex operation at 10 Mbps.
	• 100M/Full: The port is in full-duplex operation at 100 Mbps.
	• 100M/Half: The port is in half-duplex operation at 100 Mbps.
	• 1000M/Full: The port is in full-duplex operation at 1000 Mbps.
	• -: The link is broken. Link down (in the port-channel
	configuration, the speed is not displayed even when the link is in
	the UP state.

Table 7.59 Buttons in the [Port Status] window

Button	Description
Help	Displays the Help window.
Refresh	Updates the interface status display.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Status]$

(2) GUI operation

- · Refresh display
 - 1 Click the [Refresh] button.
 - 2 The interface status is updated. If Auto-Refresh is enabled, the display is automatically refreshed.

7.6.3 Port Mirroring menu

The [Port Mirroring] menu manipulates port mirroring and configures mirror port settings.

7-56 C122-E003-02EN

7.6.3.1 Destination Port window

The [Destination Port] window specifies the mirror port. Only one target port can be specified. The specified port cannot be used as a normal communication port. No channel group can be specified.

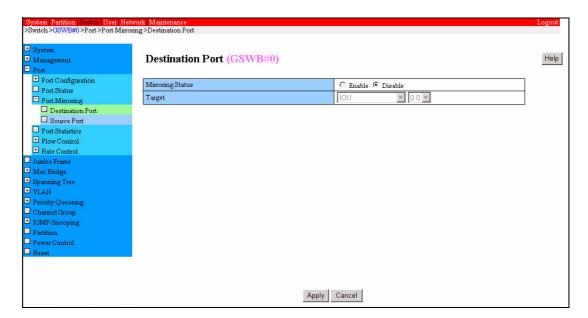


Figure 7.32 [Destination Port] window

Table 7.60 Displayed and setting items in the [Destination Port] window

Item	Description
Mirroring Status	Specify enable or disable for mirroring:
	Enable: Enables mirroring.
	Disable (default): Disables mirroring.
Target	Select the mirroring target:
	• IO_Unit (default): Select an IO_Unit (00 to 71). Default: 00
	• GigabitEthernet: Specify GigabitEthernet (0/1 to 0/8).
	• 10GigabitEthernet: Specify 10GigabitEthernet (1/1 to 1/2)

Table 7.61 Buttons in the [Destination Port] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Mirroring] \rightarrow [Destination Port]$

(2) GUI operation

- Mirror port setting
 - 1 Specify Enable in [Mirroring Status].
 - 2 Specify the target interface for the mirror port.
 - 3 Click the [Apply] button.

7-58 C122-E003-02EN

7.6.3.2 Source Port window

The [Source Port] window specifies the monitored ports. You cannot specify a channel group for a port to be monitored.

If mirroring is enabled in the [Destination Port] window, "(Destination)" is displayed for the interface number specified as a target.

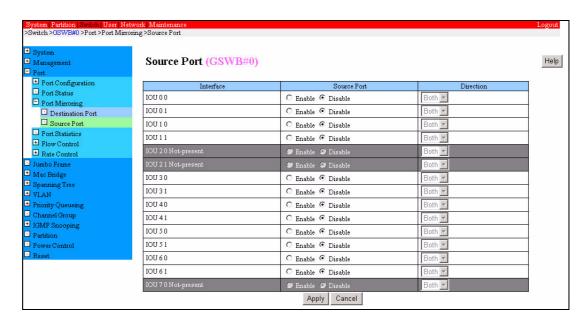


Figure 7.33 [Source Port] window

Table 7.62 Displayed and setting items in the [Source Port] window

Item	Description
Interface	Interface
Source Port	Specify the source port setting:
	Enable: Set as the source port
	• Disable (default): Not set as the source port
Direction	Specify the traffic direction:
	Rx: Incoming traffic
	Tx: Outgoing traffic
	Both (default): Bidirectional traffic

Table 7.63 Buttons in the [Source Port] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Mirroring] \rightarrow [Source Port]$

(2) GUI operation

- Port addition
 - 1 Specify [Enable] in [Source Port].
 - 2 Specify a value in [Direction].
 - 3 Repeat steps 1 and 2 for each other interface to be added.
 - 4 Click the [Apply] button.
- Port deletion
 - 1 Specify [Disable] in [Source Port].
 - 2 Click the [Apply] button.

7.6.4 Port Statistics window

The [Port Statistics] window displays statistical information (e.g., numbers of transmitted and received frames and error frames) about the GSWB interface. If 10GigabitEthernet has been selected, some items are not displayed. The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

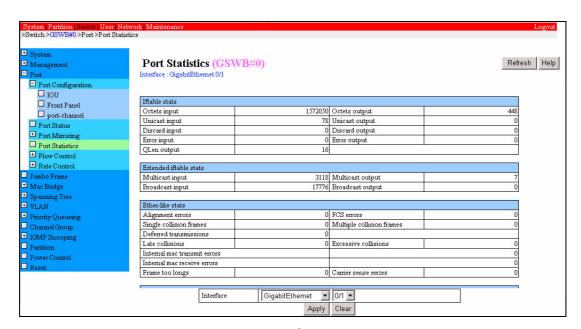


Figure 7.34 [Port Statistics] window

7-60 C122-E003-02EN

Table 7.64 Displayed and setting items in the [Port Statistics] window

Item	Description
Interface	Type and number of the interface whose statistical information is
	currently displayed
Iftable stats	
Octet input/ Octet output	Number of transmitted and received octets
Unicast input / Unicast	Number of transmitted and received unicast frames
output	
Discard input / Discard	Number of frames discarded without being transmitted or received
output	
Error input / Error	Number of transmitted and received errors
output	
Unknown protos input	Number of unsupported frames received
Qlen output	Transmit queue length
Extended Iftable states	
Multicast input /	Number of transmitted and received multicast frames
Multicast output	
Broadcast input /	Number of transmitted and received broadcast frames
Broadcast output	
Ether-like stats	
Alignment errors	Number of alignment errors. If 10GigabitEthernet has been
	selected, this item is not displayed.
FCS errors	Number of FCS errors
Single collision frames	Number of frames whose first transmission attempt failed. If
	10GigabitEthernet has been selected, this item is not displayed.
Multiple collision	Number of frames whose transmission failed in multiple attempts.
frames	If 10GigabitEthernet has been selected, this item is not displayed.
SQE Test errors	Number of SQE test errors. If 10GigabitEthernet has been
	selected, this item is not displayed.
Deferred transmissions	Number of transmission trials in which the initial transmission was
	deferred because media was in use. If 10GigabitEthernet has been
	selected, this item is not displayed.
Late collisions	Number of detected collisions. If 10GigabitEthernet has been
	selected, this item is not displayed.
Excessive collisions	Number of transmission failures caused by excessive collisions. If
	10GigabitEthernet has been selected, this item is not displayed.
Internal mac transmit	Number of frames that failed to be transmitted because of an
errors	external transmission error. If 10GigabitEthernet has been
	selected, this item is not displayed.
Internal mac receive	Number of frames that failed to be received because of an internal
errors	reception error. If 10GigabitEthernet has been selected, this item
	is not displayed.
Frame too longs	Number of sending frames longer than the maximum length

Item	Description
Carrier sense errors	Number of times that carrier detection was lost during frame
	transfer. If 10GigabitEthernet has been selected, this item is not
	displayed.
RMON status	
Octets	Number of received octets
Packets	Number of packets
Broadcast Packets	Number of broadcast packets
Multicast Packets	Number of multicast packets
Undersize Packets	Number of packets shorter than the minimum length
Oversize Packets	Number of packets longer than the maximum length
Fragments	Number of frames with a length of less than 64 octets
Jabbers	Number of frames with a length of 1518 octets or more. If
	10GigabitEthernet has been selected, this item is not displayed.
CRC Align Errors	Number of CRC alignment errors
Collisions	Number of collisions. If 10GigabitEthernet has been selected, this
	item is not displayed.
Packet size == 64 octets	Number of packets with a length of 64 octets or less
Packet size 65 to 127	Number of packets with a length ranging from 65 to 127 octets
octets	
Packet size 128 to 255	Number of packets with a length ranging from 128 to 255 octets
octets	
Packet size 256 to 511	Number of packets with a length ranging from 256 to 511 octets
octets	
Packet size 512 to 1023	Number of packets with a length ranging from 512 to 1023 octets
octets	
Packet size 1024 to 1518	
octets	If 10GigabitEthernet has been selected, this item is not displayed.
Interface	Specify the interface:
	• IOU: Select an IO_Unit (00 to 71).
	• GigabitEthernet (default): Specify GigabitEthernet (0/1 to 0/8).
	(default 0/1)
	• 10GigabitEthernet: Specify 10GigabitEthernet (1/1 to 1/2).
	• port-channel: Specify a port-channel (1 to 7).

Table 7.65 Buttons in the [Port Statistics] window

Button	Description
Refresh	Updates the display of statistic information.
Help	Displays the Help window.
Apply	Displays statistical information on the specified interface.
Clear	Clears the statistic information.

7-62 C122-E003-02EN

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Port Statistics]$

(2) GUI operation

- Interface change
 - 1 Specify the interface.
 - 2 Click the [Apply] button.
- · Refresh display
 - 1 Click the [Refresh] button.
 - 2 The displayed contents are updated. If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.
- Statistical information clearing
 - 1 Specify the interface.
 - 2 Click the [Clear] button.
 - 3 The confirmation window is displayed. Clicking [OK] clears statistical information.

7.6.5 Flow Control window

The [Flow Control] window displays the current status of each port under flow control and configures flow control settings. Configuration of port-channel settings is not possible.

The same setting for both transmission and reception is suitable for point-to-point links. Different settings are suitable for a connection between a hub and end node. (The end system being stopped by the hub is desirable, but the hub being stopped by the end system is not desirable.) For example, the "on-on" setting is suitable for a connection between switches and the "on-off" or "off-on" setting is suitable for a connection between a switch and end station.

An asterisk (*) displayed in the IO_Unit field of a partition indicates that the port settings are not synchronized with the partition configuration.

Only the settings of defined partitions are displayed under [Partition] in the window.

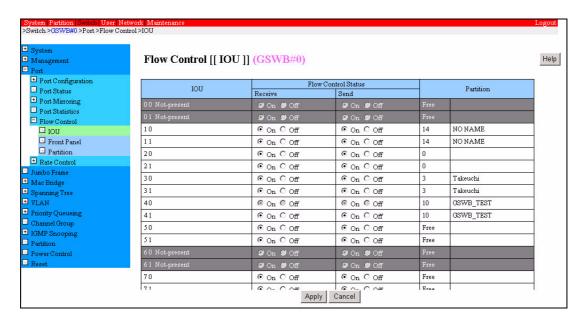


Figure 7.35 [Flow Control (IO_Unit)] window

7-64 C122-E003-02EN

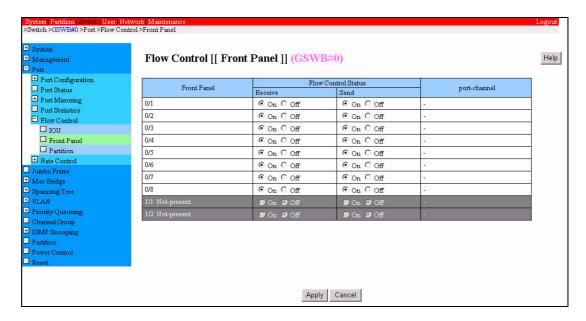


Figure 7.36 [Flow Control (Front Panel)] window

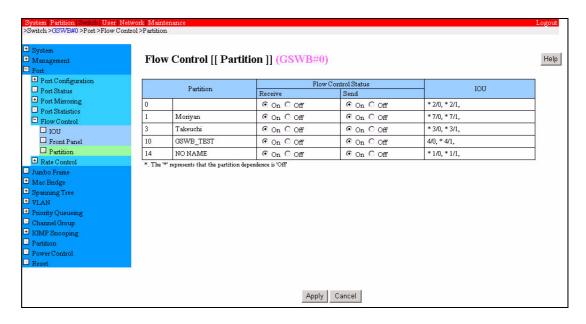


Figure 7.37 [Flow Control (Partition)] window

Table 7.66 Displayed and setting items in the [Flow Control] window

Item	Description
Flow Control Status	
Receive	Specify whether to allow the interface to receive flow control packets from a remote unit: On: The interface can receive flow control packets from connected units that must send them and from those that need not send them but can still send them. Off (default): The function for sending flow control packets to
• Send	the interface is disabled for a connected unit. Specify whether to allow the interface to send flow control packets
	 to a remote unit: On: The interface sends flow control packets to a remote unit that supports flow control. Off (default): The function for sending flow control packets to a remote unit is disabled for a local port.

Table 7.67 Buttons in the [Flow Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Flow Control]$

(2) GUI operation

- Setting
 - 1 To change the flow control status, change the radio button settings accordingly.
 - 2 Click the [Apply] button.

7-66 C122-E003-02EN

7.6.6 Rate Control window

The [Rate Control] window displays and configures the threshold values of rate control. Configuration of port-channel and 10GigabitEthernet settings is not possible.

- An asterisk (*) displayed in an IO_Unit field of a partition indicates the port settings are not synchronized with the partition configuration.
- Only the settings of defined partitions are displayed under [Partition] in the window.

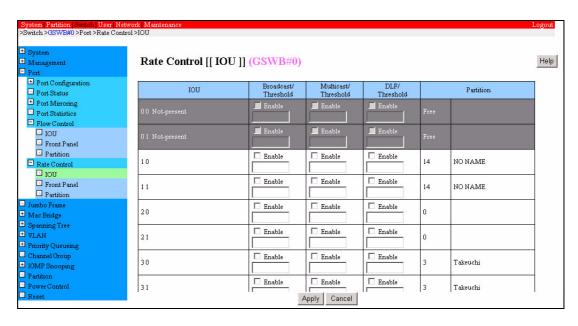


Figure 7.38 [Rate Control (IOU)] window

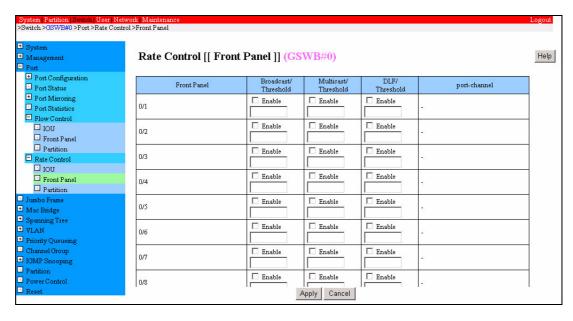


Figure 7.39 [Rate Control (Front Panel)] window

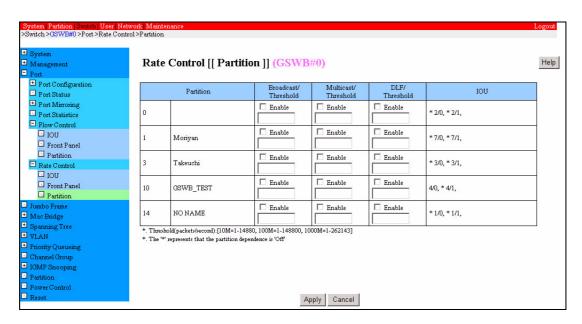


Figure 7.40 [Rate Control (Partition)] window

Table 7.68 Displayed and setting items in the [Rate Control] window

Item	Description
Broadcast/Threshold	Define broadcast storm control:
	• Enable: Turn this on to enable broadcast storm control on the
	port. Default: off (disabled)
	• Threshold: Specify the threshold (pkts/sec). Default: 0 (For 0,
	the field is blank.)
	1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M)
	The setting ranges are provided as a guide for the link-up speeds
	shown in (), and all of them are in a range of 1 to 262143.
Multicast/Threshold	Define multicast storm control:
	• Enable: Specify whether to enable multicast storm control on
	the port. Default: off (disabled)
	• Threshold: Specify the threshold (pkts/sec). Default: 0 (For 0,
	the field is blank.)
	1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M)
	The setting ranges are provided as a guide for the link-up speeds
	shown in (), and all of them are in a range of 1 to 262143.

7-68 C122-E003-02EN

Item	Description
DLF/Threshold	Define Destination Lookup failure (DLF) storm control:
	• Enable: Specify whether to enable DLF storm control on the
	port. Default: off (disabled)
	• Threshold: Specify the threshold (pkts/sec). Default: 0 (For 0,
	the field is blank.)
	1 to 14880 (10M), 1 to 148800 (100M), 1 to 262143 (1000M)
	The setting ranges are provided as a guide for the link-up speeds
	shown in (), and all of them are in a range of 1 to 262143.

Table 7.69 Buttons in the [Rate Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Port] \rightarrow [Rate Control]$

(2) GUI operation

- Setting ON
 - 1 Turn on [Enable].
 - 2 Enter a threshold value in the allowable range.
 - 1 Click the [Apply] button.
- Setting OFF
 - 1 Turn off [Enable].
 - 2 Click the [Apply] button.

7.7 Jumbo Frame Menu

7.7.1 Jumbo Frame window

Clicking the [Jumbo Frame] menu displays the [Jumbo Frame] window. The [Jumbo Frame] window displays the jumbo frame status and configures jumbo frame settings.

When specifying a jumbo frame, the frame sizes in all units on the communication path must match.

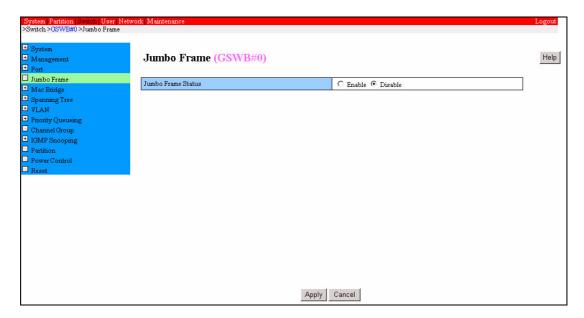


Figure 7.41 [Jumbo Frame] window

Table 7.70 Displayed or setting item in the [Jumbo Frame] window

Item	Description
Jumbo Frame Status	Specify enable or disable for the jumbo frame:
	Enable: Enables the jumbo frame.
	• Disable (default): Disables the jumbo frame.

Table 7.71 Buttons in the [Jumbo Frame] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

7-70 C122-E003-02EN

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [Jumbo \ Frame]$

(2) GUI operation

- 1 Specify values in [Jumbo Frame Status].
- 2 Click the [Apply] button.

7.8 MAC Bridge Menu

The [MAC Bridge] menu is used to manipulate the MAC address table and configure its settings.

7.8.1 Aging Time window

The [Aging Time] window specifies the period in which dynamic entries are retained in the MAC address table.

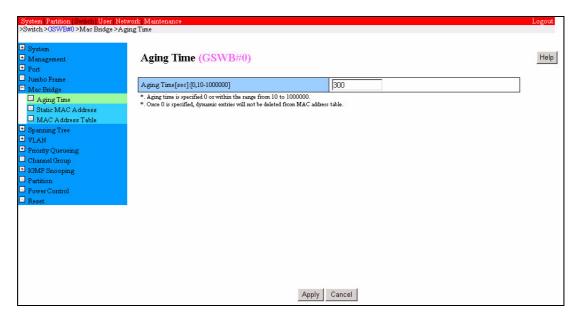


Figure 7.42 [Aging Time] window

Table 7.72 Displayed or setting item in the [Aging Time] window

Item	Description
Aging Time	Specify the aging time. If 0 is specified, no dynamic entry is
	deleted from the MAC address table.
	• Time value range: 0 or 10 to 1000000 (s) (300 by default)

Table 7.73 Buttons in the [Aging Time] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

7-72 C122-E003-02EN

 $[Switch] \rightarrow [GSWB#x] \rightarrow [MAC Bridge] \rightarrow [Aging Time]$

(2) GUI operation

- Setting
- 1 To change the aging time setting, change its current value.
- 2 Click the [Apply] button.

7.8.2 Static MAC Address window

The [Static MAC Address] window displays, adds, and deletes static addresses. Up to 128 static addresses can be registered. However, it may not be possible to register the maximum number (128) of static addresses when the MAC address table has reached its maximum size.

Broadcast addresses, multicast addresses, and an ALL 0 MAC address cannot be specified.

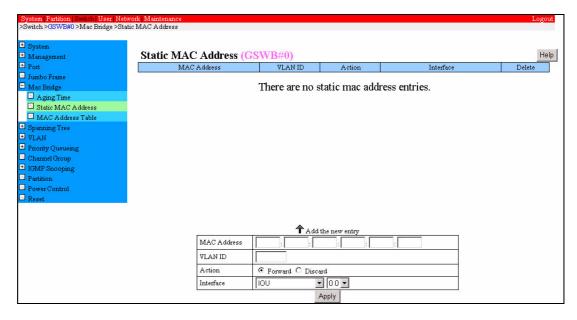


Figure 7.43 [Static MAC Address] window

Table 7.74 Displayed and setting items in the [Static MAC Address] window

Item	Description
MAC Address	Station MAC address
VLAN ID	VLAN ID

Item	Description
Action	Forward/discard setting:
	• Forward (default): Transfers frames to their destinations.
	• Discard: Discards frames of the specified destination.
Interface	Interface
Delete	To delete a static address, check its check box.
Add the New Entry	•
MAC Address	Specify the station MAC address.
	Octet range: 0x00 to 0xFF
VLAN ID	Specify a VLAN ID.
	Setting range: 1 to 4094
Action	Specify forward or discard:
	• Forward (default): Transfers frames to their destinations.
	Discard: Discards frames of the specified destination
Interface	Specify the interface:
	• IOU (default): Select an IO_Unit (00 to 71). Default: 00
	• GigabitEthernet: Specify GigabitEthernet (0/1 to 0/8).
	• 10GigabitEthernet: Specify 10GigabitEthernet (1/1 to 1/2)
	only if the 10G daughterboard is mounted.
	• port-channel: Specify a port-channel (1 to 7).

Table 7.75 Buttons in the [Static MAC Address] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [MAC Bridge] \rightarrow [Static MAC Address]$

(2) GUI operation

- Setting
 - 1 Specify the MAC address, VLAN ID, interface, and action.
 - 2 Click the [Apply] button.
- Deletion
 - 1 Check the appropriate [Delete] check box. Multiple check boxes can be checked.
 - 2 Click the [Apply] button.

7-74 C122-E003-02EN

7.8.3 MAC Address Table window

The [MAC Address Table] window displays static addresses and display and clears dynamic addresses. Up to 16384 addresses can be registered in the MAC Address Table. Static entries cannot be deleted by clearing them. The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

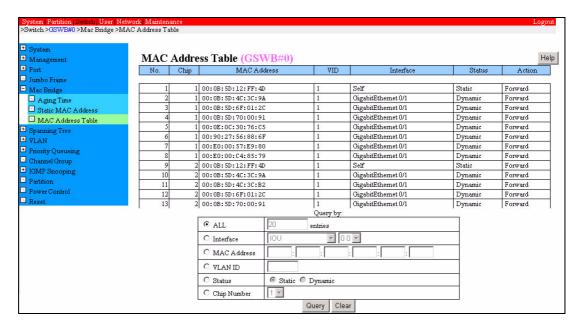


Figure 7.44 [MAC Address Table] window

Table 7.76 Displayed and setting items in the [MAC Address Table] window

Item	Description
No	Displays the entry number.
Chip	Select a chip number.
MAC Address	MAC address
VID	VLAN ID
Interface	Interface
Status	Address status:
	Static: Static address
	Dynamic: Dynamic address
Action	Forward/discard setting:
	• Forward: Transfers frames to their destinations.
	Discard: Discards frames of the specified destination.

Query By: Search conditions

All	Select this to display all entries. The number of MAC address
	entries registered with the GSWB is displayed in the field on the
	right.

Item	Description
Interface	Specify the interface (default: IO_Unit):
	• IO_Unit (default): Specify an I/O unit (00 to 71). Default: 00
	• GigabitEthernet: Specify GigabitEthernet (0/1 to 0/8).
	• 10GigabitEthernet: Specify 10GigabitEthernet (1/1 to 1/2).
	• port-channel: Specify a port-channel (1 to 7).
VLAN ID	Specify a VLAN ID (1 to 4094).
MAC Address	Specify the station MAC address (0x00 to 0xFF).
Status	Specify the type of addresses to be displayed:
	• Static (default): Displays static addresses only.
	Dynamic: Displays dynamic addresses only.
Chip Number	Specify a chip number (1 to 4).

Table 7.77 Buttons in the [MAC Address Table] window

Button	Description
Help	Displays the Help window.
Query	Displays search results after a search is completed.
Clear	Clears dynamic entries. Static entries are not cleared.
Next	If number of entries to be displayed exceeds 1024, clicking this
	button displays the next 1024 entries. The [Next] button is
	displayed only if there are still entries to be displayed after the
	[Query] button is clicked.
Cancel	Returns to the initial [MAC Address Table] window. This button
	is displayed only after the [Query] button is clicked.

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [MAC Bridge] \rightarrow [MAC Address Table]$

(2) GUI operation

- Display
 - 1 Specify the search conditions. Multiple search conditions cannot be specified.
 - 2 Click the [Query] button.
 - 3 Only entries that matched the search conditions are displayed.
- Clearing
 - 1 To clear dynamic MAC address entries, click the [Clear] button.
 - 2 The confirmation window is displayed. Clicking the [OK] button clears the dynamic entries.
 - 3 All dynamic entries are cleared, regardless of the search conditions.

7-76 C122-E003-02EN

7.9 Spanning Tree Menu

Loops may be formed when a redundant configuration is integrated into a network. The protocol function detects and removes such loops, and the [Spanning Tree] menu is used to configure protocol function settings.

7.9.1 Global Setting window

The [Global Setting] window configures spanning tree protocol settings.



Figure 7.45 [Global Setting] window

Table 7.78 Displayed and setting items in the [Global Setting] window

Item	Description
Spanning Tree Protocol	Specify enable or disable for the spanning tree protocol:
	• Enable (default): Enables the protocol.
	• Disable: Disables the protocol.
BPDU Filter	Define BPDU filtering:
	• Enable: Specifies transfer of Bridge Protocol Data Unit (BPDU)
	frames when STP is disabled.
	Disable (default): Disables BPDU filtering on the specified
	interface. [Disable] is always used when STP is enabled.
Bridge Priority	Specify the bridge priority. The lower this value, the higher the
	bridge priority.
	Setting range: 0 to 65535 (default: 32768)

Item	Description
Max Age	Specify the maximum aging time. Reception of periodic Hello
	messages stops and recalculations for the spanning tree starts when
	the specified time has elapsed.
	Time value range: 6 to 40 (s) (default: 20)
Hello Time	Specify a Hello message transmission interval.
	Time value range: 1 to 10 (s) (default: 2)
Forward Time	Set the transfer delay timer. The transfer delay time is the period
	required for a transition to another state, such as a transition from
	the listening state (Listening) > learning state (Learning) >
	forwarding state (Forwarding).
	Time value range: 4 to 30 (s) (default: 15)

Table 7.79 Buttons in the [Global Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Spanning Tree] \rightarrow [Global Setting]$

(2) GUI operation

- Setting Enable in [Spanning Tree Protocol]
 - 1 Specify [Enable] for [Spanning Tree Protocol].
 - 2 Specify values in [Bridge Priority], [Max Age], [Hello Time], and [Forward Time].
 - 3 Click the [Apply] button.
- Setting Disable in [Spanning Tree Protocol]
 - 1 Specify [Disable] for [Spanning Tree Protocol].
 - 2 Specify [Enable] or [Disable] in [BPDU Filter].
 - 3 Click the [Apply] button.

7-78 C122-E003-02EN

7.9.2 Interface Setting window

The [Interface Setting] window manipulates STP for the interface and configures interface settings. If STP is enabled for the whole device, interface settings can be configured. The default STP setting for interfaces is disabled for the IO_Unit interface and enabled for other interfaces.

If [Disable] is set in [Spanning Tree Protocol] in the [Global Setting] window, "'Spanning Tree Protocol' status is Disabled." is displayed.

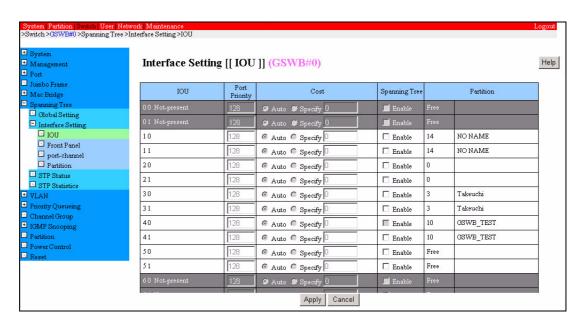


Figure 7.46 [Interface Setting (IO Unit)] window

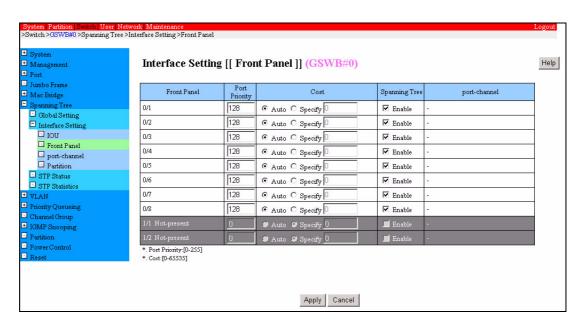


Figure 7.47 [Interface Setting (Front Panel)] window

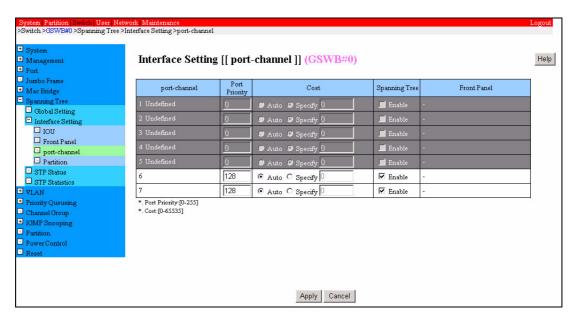


Figure 7.48 [Interface Setting (port-channel)] window

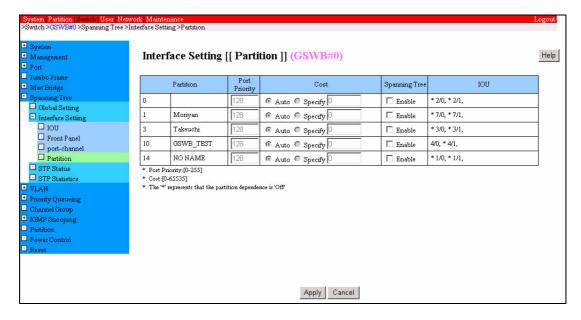


Figure 7.49 [Interface Setting (Partition)] window

7-80 C122-E003-02EN

Table 7.80 Displayed and setting items in the [Interface Setting] window

Item	Description
Port Priority	Specify the port priority. The lower the port priority, the higher the
	probability of forwarding.
	• Setting range: 0 to 255 (default: 128)
Cost	Specify the interface path cost:
	Setting value: [Auto] or [Specify]
	If [Specify] is specified, specify a value ranging from 0 to
	65535. (default: Auto)
	• If [Auto] is specified, the default value is as follows:
	10Mbps: 100
	100Mbps: 19
	1000Mbps: 4
	10Gbps: 2
Spanning Tree	To enable STP for the specified interface when STP is enabled for
	the whole device, check the check box of the interface. (Default:
	on, except IO_Unit interface)

Table 7.81 Buttons in the [Interface Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Spanning Tree] \rightarrow [Interface Setting]$

(2) GUI operation

- Setting
 - 1 Confirm that [Enable] is selected for [Spanning Tree Protocol] in the [Global Setting] window.
 - 2 Enable an interface in [Spanning Tree].
 - 3 Specify values in [Port Priority] and [Cost].
 - 4 To disable STP on the interface, uncheck the [Enable] check box in [Spanning Tree].
 - 5 Click the [Apply] button.

7.9.3 STP Status window

The [STP Status] window displays the STP status. If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.

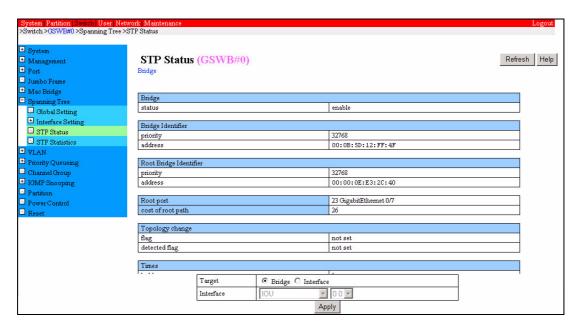


Figure 7.50 [STP Status (Bridge status Enable)] window

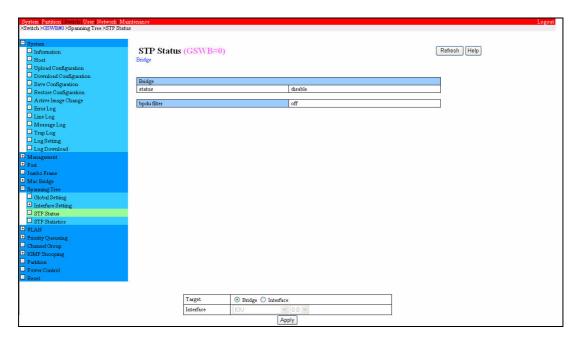


Figure 7.51 [STP Status (Bridge status Disable)] window

7-82 C122-E003-02EN

Table 7.82 Displayed and setting items in the [STP Status (Bridge status)] window

Item	Description
Bridge: Bridge informati	on
status	STP setting status, either STP enabled or STP disabled:
	Enable: STP enabled
	Disable: STP disabled
Bridge Identifier: Device	identification information
priority	Bridge priority value of the device:
	• Displayed range: 0 to 65535
address	Device MAC address
Root Bridge Identifier: R	-
priority	Bridge priority of the bridge unit specified as the root bridge:
	• Displayed range: 0 to 65535
address	MAC address of the bridge unit specified as the root bridge
Root port	Interface name of the unit specified as the root port. The following
	interface types can be used:
	• GigabitEthernet 0/1 to 0/8
	• I/O units 00 to 71
	• TenGigabitEthernet 1/1 to 1/2
	• Port-channels 1 to 7
	If the interface works as a root bridge, "0" is displayed as the port
	number and nothing is displayed as the interface name.
cost of root path	Path cost from the device to the root bridge:
	• Displayed range: 0 to 2147483647
Topology change: Flag ('	'set" or "not set" is displayed)
flag	Topology change flag (set or not set).
detected flag	Topology change detection flag (set or not set).
Times: Values of timers i	n use (These are not displayed when the topology is being changed.)
hold	Config BPDU transmission holding period
topology change	Topology change flag storage period in Config BPDU
notification	TCN BPDU transmission interval when a topology change is
	detected
hello	Config BPDU transmission interval
max age	Maximum aging time
forward delay	Transfer delay time
Configured Times: Specified values based on configuration definitions (These are not	
displayed when the topol	ogy is being changed.)
hello time	Config BPDU transmission time:
	Interval value range: 1 to 10
max age	Maximum aging time:
	Displayed range: 6 to 40
L	

Item	Description	
forward delay	Transfer delay time:	
	Displayed range: 6 to 40	
Timers: Flags that indicate whether timers are active ("ACTIVE" or "INACTIVE" is		
displayed) (These are not displayed when the topology is being changed.)		
hello	Hello time timer	
bpdu filter	BPDU filter setting status (These are displayed only when the	
	status is "disable.")	

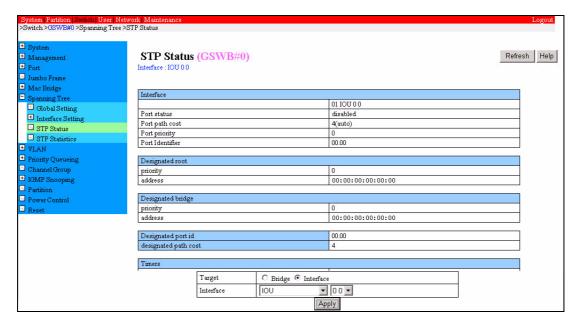


Figure 7.52 [STP Status (Interface status)] window

Table 7.83 Displayed and setting items in the [STP Status (Interface status)] window

Item	Description	
Interface: Interface inf	Interface: Interface information	
	Port name:	
	• IOU 00 to 71	
	• GigabitEthernet 0/1 to 0/8	
	• TenGigabitEthernet 1/1 to 1/2	
	• Port-channels 1 to 7	
	The interface name is "none" if no port-channel is defined and the	
	interface status is "10GigabitEthernet Not-present."	
Port status	Port status (listening, learning, forwarding or blocking)	
Port path cost	Port path cost	
	(If "auto" is specified, "(auto)" is displayed.)	

7-84 C122-E003-02EN

Item	Description	
Port priority	Port priority	
Port Identifier	Port ID	
Designated root: Root b	ridge information	
priority	Priority	
address	MAC address	
Designated bridge: Designated bridge information		
priority	Priority	
address	MAC address	
Designated port id	Designated port ID	
Designated path cost	Designated path cost (if the interface is not the designated port,	
	same as the designated path cost in [Config BPDU])	
Timers: Flag to indicate whether the timer is active (ACTIVE or INACTIVE is displayed)		
forward delay	Forward delay timer	

Item	Description
Target	Select the target to be displayed.
	• Bridge (default): Displays bridge information.
	• Interface: Displays interface information.
Interface	Select an interface.
	• IOU (default): Selects an IO_Unit (00 to 71) (default: 00)
	• GigabitEthernet: Specifies GigabitEthernet (0/1 to 0/8)
	• 10GigabitEthernet: Specifies 10GigabitEthernet (1/1 to 1/2)
	• port-channel: Specifies a port channel (1 to 7).

Table 7.84 Buttons in the [STP Status] window

Button	Description
Refresh	Displays the latest information.
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

hold

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Spanning Tree] \rightarrow [STP Status]$

Hold timer

(2) GUI operation

- Bridge information display
 - 1 Specify [Bridge] in [Target].
 - 2 Click the [Apply] button.

- 3 To refresh the displayed information, click the [Refresh] button in the title area.
- Interface information display
 - 1 Specify [Interface] in [Target].
 - 2 Select [Interface], and click the [Apply] button.
 - 3 To refresh the displayed information, click the [Refresh] button in the title area.

7.9.4 STP Statistics window

The [STP Statistics] window displays the STP statistical information.

If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.

The [Clear] button is not displayed for users who logged in with the User or Operator privilege.

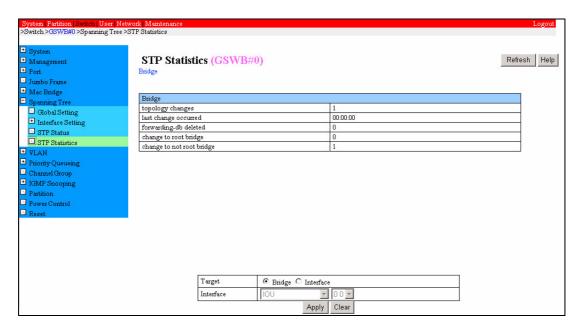


Figure 7.53 [STP Statistics (bridge information)] window

7-86 C122-E003-02EN

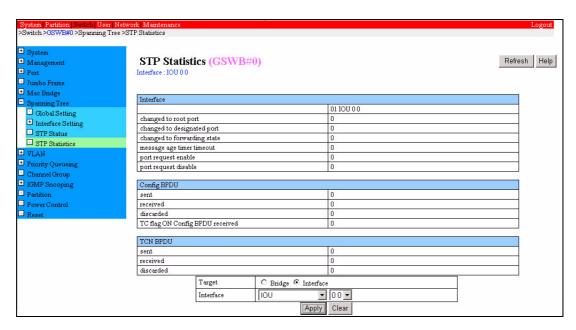


Figure 7.54 [STP Statistics (interface information)] window

Table 7.85 Displayed and setting items in the [STP Statistics] window

Item	Description
Bridge: Bridge information	
topology changes	Number of topology changes
last change occurred	Elapsed time after the last topology change
forwarding-db deleted	Number of times that the learning table was deleted
changed to root bridge	Number of times that a bridge was changed to the root bridge
changed to not root	Number of times that a bridge was changed to a non-root bridge
bridge	
Interface: Interface infor	mation
	Port name:
	• IOU 00 to 71
	• GigabitEthernet 0/1 to 0/8
	• TenGigabitEthernet 1/1 to 1/2
	• Port-channels 1 to 7
	The interface name is "none" if no port-channel is defined and the
	interface status is "10GigabitEthernet Not-present."
changed to root port	Number of times that a port was changed to the root port
changed to designated	Number of times that a port was changed to the designated port
port	
changed to forwarding	Number of transitions to the forwarding state
state	
message age timer	Timeout count of the message age timer
timeout	

Item	Description
port request enable	Number of times that the port was enabled
port request disable	Number of times that the port was disabled
Config BPDU: Config B	PDU statistical information
sent	Number of transmitted BPDUs
received	Number of received BPDUs
discarded	Number of received BPDUs that were discarded
TC flag ON Config	Number of received Config BPDUs with the topology change flag
BPDU received	set to ON.
TCN BPDU: TCN BPDU	J statistical information
sent	Number of transmitted BPDUs
received	Number of received BPDUs
discarded	Number of received BPDUs that were discarded
BPDU discarded by	Number of BPDUs that were discarded because of a system error
system error	
Trigger for changing to r	oot bridge: Trigger for a change to the root bridge
message age timeout	Displays the number of times that message age timeout became a
	trigger.
port down	Displays the number of times that port-down became a trigger.
Trigger for changing to r	not root bridge: Trigger for a change to a non-root bridge
new Config BPDU	Reception of a new Config BPDU
received	
Target	Select the type of information to be displayed:
	Bridge (default): Bridge information
	Interface : Interface information
Interface	Select the interface whose information is displayed when
	[Interface] has been selected in [Target]:
	• Select an I/O unit (00 to 71). Default: 00
	• Specify GigabitEthernet (0/1 to 0/8).
	• Specify 10GigabitEthernet (1/1 to 1/2).
	• Specify a port-channel (1 to 7).

Table 7.86 Buttons in the [STP Statistics] window

Button	Description
Refresh	Displays up-to-date information.
Help	Displays the Help window.
Apply	Sets the specified values.
Clear	Clears statistical information.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Spanning Tree] \rightarrow [STP Statistics]$

7-88 C122-E003-02EN

(2) GUI operation

- · Bridge statistical information display
 - 1 Specify [Bridge] in [Target].
 - 2 Click the [Apply] button.
- Interface statistical information display
 - 1 Specify [Interface] in [Target].
 - 2 Select the interface whose information is to be displayed.
 - 3 Click the [Apply] button.
- · Refresh display
 - 1 Click the [Refresh] button. If Auto-Refresh is enabled, the display is automatically refreshed, and the [Refresh] button need not be clicked.
- Statistical information clearing
 - 1 Click the [Clear] button.
 - 2 Clicking the [OK] button in the confirmation window clears the target statistical information. All statistical information is cleared, rather than statistical information on the selected interface.

7.10 VLAN Menu

The [VLAN] menu is used to manipulate VLANs and configure VLAN settings.

7.10.1 VLAN ID Select window

The [VLAN ID Select] window is used to select a VLAN for settings or changes.

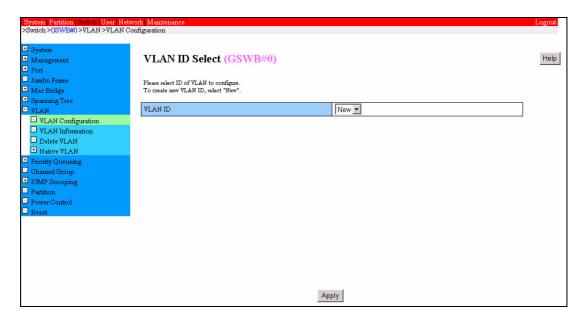


Figure 7.55 [VLAN ID Select] window

Table 7.87 Displayed or setting item in the [VLAN ID Select] window

Item	Description
VLAN ID	Select a VLAN ID. To create a VLAN ID, select [New].
	Selection range: defined VLAN IDs or [New]: 1 to 4094 (Default:
	New)

Table 7.88 Buttons in the [VLAN ID Select] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [VLAN] \rightarrow [VLAN Configuration]$

7-90 C122-E003-02EN

(2) GUI operation

- VLAN ID creation
 - 1 Select [New].
 - 2 Click the [Apply] button.
 - 3 The [VLAN Configuration] window is displayed.
- Setting change
 - 1 Select the VLAN ID to be changed from [VLAN ID].
 - 2 Click the [Apply] button.
 - 3 The [VLAN Configuration] window is displayed.

7.10.1.1 VLAN Configuration window

The [VLAN Configuration] window configures settings of the VLAN selected in the [VLAN ID Select] window. Changing only the VLAN name is not possible. To change a VLAN name, delete the VLAN, and create a VLAN specified with the new name.

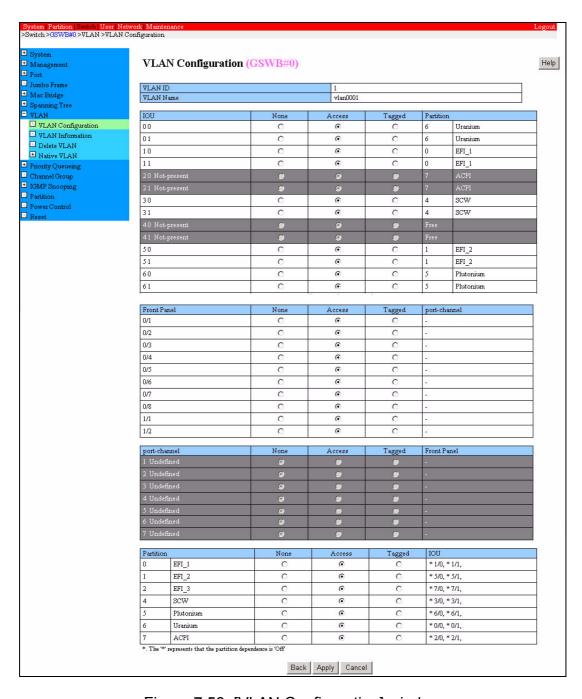


Figure 7.56 [VLAN Configuration] window

7-92 C122-E003-02EN

Table 7.89 Displayed and setting items in the [VLAN Configuration] window

Item	Description
VLAN ID	Specify a VLAN ID when creating a VLAN.
	Setting range: 2 to 4094
VLAN Name	Specify a VLAN name consisting of up to 32 en-size alphanumeric
	characters. (optional)
VLAN Config	Select a VLAN type:
	• None (default): Does not include the interface in the selected
	VLAN.
	• Access: Specifies the VLAN as an access VLAN (port VLAN).
	• Tagged: Specifies the VLAN as a tagged VLAN.

Table 7.90 Buttons in the [VLAN Configuration] window

Button	Description
Help	Displays the Help window.
Back	Redisplays the window that was displayed before the transition.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

[Switch] \rightarrow [GSWB#x] \rightarrow [VLAN] \rightarrow [VLAN Configuration] \rightarrow Select a VLAN ID \rightarrow [Apply] button

(2) GUI operation

- VLAN creation
 - 1 Specify values in [VLAN ID] and [VLAN NAME].
 - 2 Click the [Apply] button.
- Setting change
 - 1 Change the setting for the VLAN of each interface.
 - 2 Click the [Apply] button.

Reference: Since an interface needs to be a member of a defined VLAN, the setting may be left unchanged if you specify [None] and click the [Apply] button.

7.10.2 VLAN Information window

The [VLAN Information] window lists VLANs that have been set up. "-" is displayed for any interface that is not a member of the VLAN configuration. "A" is displayed for any interface in Access mode. "T" is displayed for any tagged interface in Trunk mode.

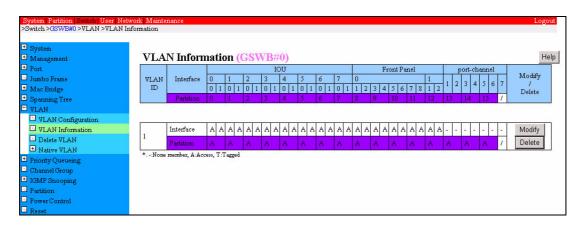


Figure 7.57 [VLAN Information] window

Table 7.91 Displayed or setting item in the [VLAN Information] window

Item	Description
VLAN ID	VLAN information:
	-: Not a member of the VLAN configuration
	• A: Access VLAN
	• T: Tag VLAN

Table 7.92 Buttons in the [VLAN Information] window

Button	Description
Help	Displays the Help window.
Modify	Modifies VLAN information.
Delete	Deletes VLAN information.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [VLAN] \rightarrow [VLAN Information]$

(2) GUI operation

- VLAN setting change
 - 1 To change a VLAN, click the [Modify] button next to its VLAN ID.

7-94 C122-E003-02EN

- 2 The [VLAN Configuration] window is displayed. (See Section 7.10.1.1, "VLAN Configuration window.")
- VLAN deletion
 - 1 To delete a VLAN, click the [Delete] button next to its VLAN ID.
 - 2 Clicking the [OK] button in the confirmation window deletes the VLAN.

7.10.3 Delete VLAN window

The [VLAN Delete] window deletes VLANs. [VLAN 1] cannot be deleted.

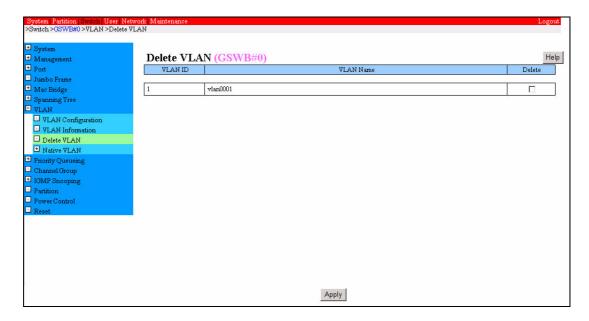


Figure 7.58 [Delete VLAN] window

Table 7.93 Displayed and setting items in the [Delete VLAN] window

Item	Description
VLAN ID	Registered VLAN ID
VLAN Name	VLAN name corresponding to a VLAN ID
Delete	To delete a VLAN, check the check box of its VLAN ID.

Table 7.94 Buttons in the [Delete VLAN] window

Button	Description
Help	Displays the Help window.
Apply	Deletes the specified VLAN ID.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [VLAN] \rightarrow [Delete VLAN]$

(2) GUI operation

- · VLAN deletion
 - 1 To delete a VLAN, check the check box of its VLAN ID.
 - 2 Click the [Apply] button.
 - 3 Clicking the [OK] button in the confirmation window deletes the VLAN.

7.10.4 Native VLAN window

The [Native VLAN] window specifies native VLAN IDs. If the interface is in VLAN Trunk mode, specify a VLAN that receives traffic without tags. A VLAN ID can be changed only if the interface belongs to a tagged VLAN.

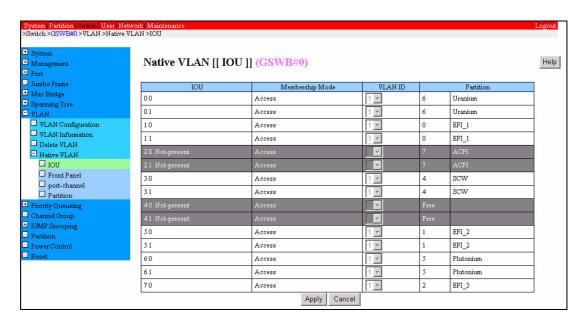


Figure 7.59 [Native VLAN (IO Unit)] window

7-96 C122-E003-02EN

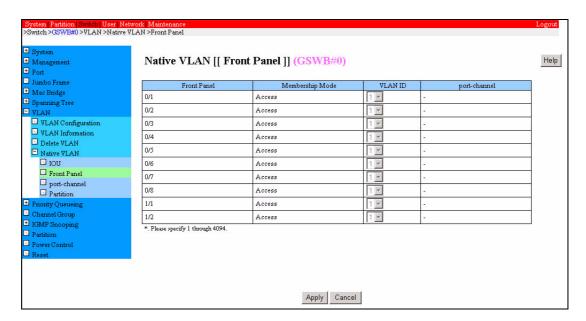


Figure 7.60 [Native VLAN (Front Panel)] window

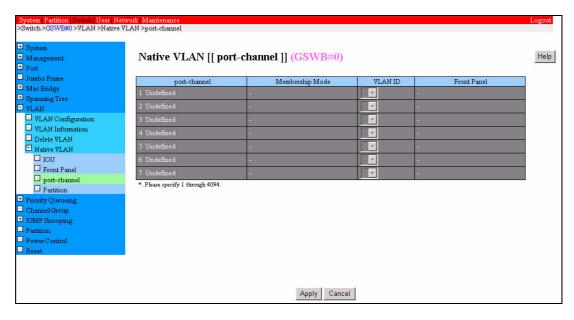


Figure 7.61 [Native VLAN (port-channel)] window

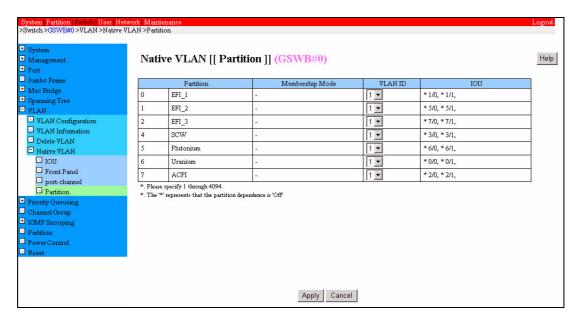


Figure 7.62 [Native VLAN (Partition)] window

Table 7.95 Displayed or setting item in the [Native VLAN] window

Item	Description
VLAN ID	Specify a PVID that is allocated to traffic without a tag when the
	interface is in 802.1Q VLAN Trunk mode.
	Setting range for defined VLAN ID: 1 to 4094 (default: 1)

Table 7.96 Buttons in the [Native VLAN] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [VLAN] \rightarrow [Native VLAN]$

(2) GUI operation

- Setting
 - 1 Select a VLAN ID that is allocated to traffic without a tag.
 - 2 Click the [Apply] button.

7-98 C122-E003-02EN

7.11 Priority Queueing Menu

The [Priority Queueing] menu is used to define priority control.

7.11.1 Default Priority window

The [Default Priority] window sets priorities to frames without tags. They do not apply to IEEE802.1Q VLAN tagged frames.

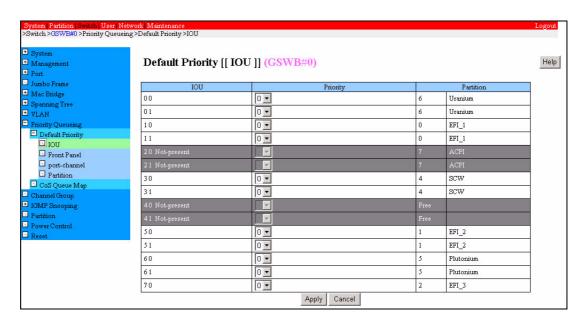


Figure 7.63 [Default Priority (IO_Unit)] window

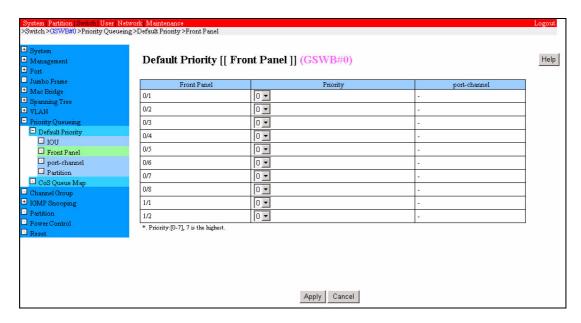


Figure 7.64 [Default Priority (Front Panel)] window

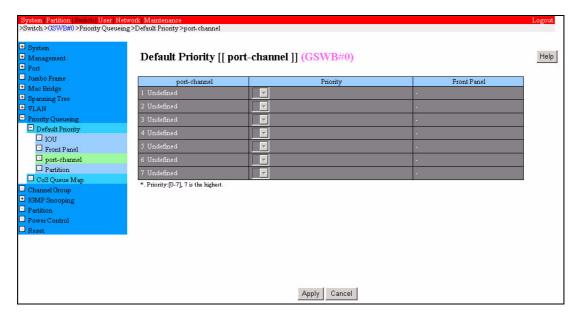


Figure 7.65 [Default Priority (port-channel)] window

7-100 C122-E003-02EN

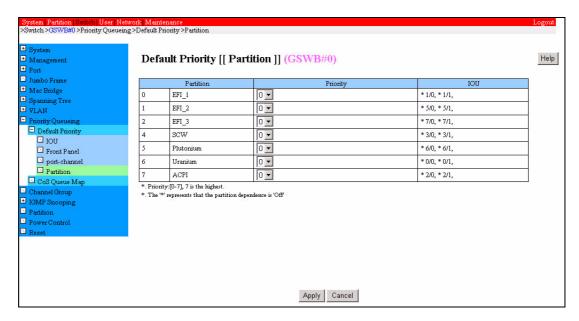


Figure 7.66 [Default Priority (Partition)] window

Table 7.97 Displayed or setting item in the [Default Priority] window

Item	Description
Priority	Specify the priority for a frame without a tag. The highest priority
	is 7.
	• Setting range: 0 to 7 (default: 0)

Table 7.98 Buttons in the [Default Priority] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB\#x] \rightarrow [Priority Queueing] \rightarrow [Default Priority]$

(2) GUI operation

- Setting
 - 1 Select the priority.
 - 2 Click the [Apply] button.

7.11.2 CoS Queue Map window

The [CoS Queue Map] window defines the correspondence between the user priority and the CoS Queue. Clicking the [Default] button returns the mapping to its initial state.

Table 7.99 Weighting in each Queue

Priority (CoS Queue)	Weight	Notes
0	1	The bandwidth is about 10% for
		simultaneous transmission of all queues.
1	2	The bandwidth is about 20% for
		simultaneous transmission of all queues.
2	3	The bandwidth is about 30% for
		simultaneous transmission of all queues.
3	4	The bandwidth is about 40% for
		simultaneous transmission of all queues.

Table 7.100 Default QoS map

Unit priority	y User prior	ity Application (example)
0	1, 2	Background service
1	0, 3	Best efforts (default)
2	4, 5	Video
3	7, 6	Network management, audio, etc.

Note: The CoS value allocated to the input port is used for CoS priority selection in the output port.

7-102 C122-E003-02EN

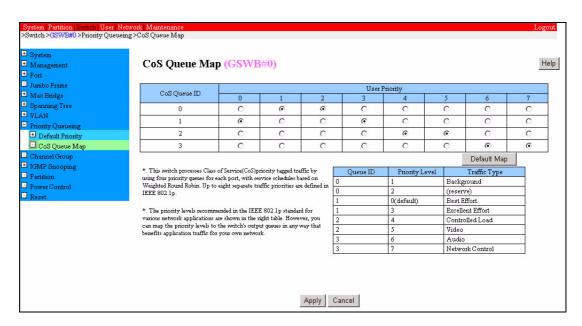


Figure 7.67 [CoS Queue Map] window

Table 7.101 Displayed and setting items in the [CoS Queue Map] window

Item	Description	
CoS Queue ID	Queue ID of CoS priority queue (0 to 3)	
User Priority	Specify the priority of a frame without a tag:	
	• Setting range: 0 to 7	

Table 7.102 Buttons in the [CoS Queue Map] window

Button	Description
Help	Displays the Help window.
Default Map	Returns mapping to its initial state.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Priority Queueing] \rightarrow [CoS Queue Map]$

(2) GUI operation

- Setting
- 1 Click the appropriate radio buttons to perform mapping.
- 2 Click the [Apply] button.

- Default value restoration
 - 1 Click the [Default Map] button.
 - 2 Click the [Apply] button.

7-104 C122-E003-02EN

7.12 Channel Group Menu

7.12.1 Channel Group window

The [Channel Group] window adds and deletes physical links in channel groups:

- If a channel group has no port, the channel group is deleted.
- A channel group is defined when the first port is added.
- Up to eight ports can be configured in one channel group.
- Load balancing can be set up only for a defined channel group. (Load balancing is set up by default when the group is defined).
- The first port added to a channel group is set as the Master-Port, which has the lowest interface number among the ports in the channel group.
- To delete the Master-Port, it must be deleted when all other ports in the same channel group are deleted.
- GigabitEthernet and 10GigabitEthernet ports cannot be in the same channel group.

Note: To add an IOU interface to a channel group, use the GSWB CLI. When the GSWB CLI is used to add an IOU interface to a channel group, the [Channel Group] window does not display the added interface and displays only "Defined" for it.

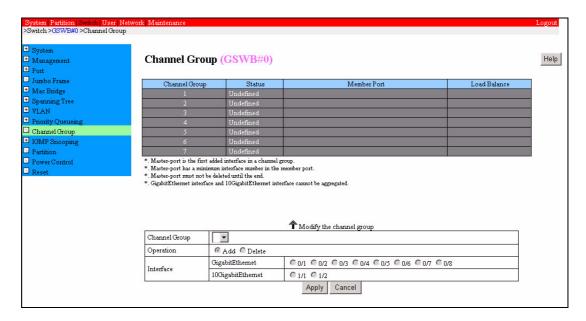


Figure 7.68 [Channel Group] window

Table 7.103 Displayed and setting items in the [Channel Group] window

Item	Description
Channel Group	Displays the channel group number.
Status	Channel group status:
	Defined: Defined/registered channel group
	Undefined: Undefined channel group
Member Port	Port
Load Balance	Load balancing information
Modify the channel group	p
Channel Group	Specify the channel number for a channel group:
	• Setting range: 1 to 7
Operation	Select Add or Delete for an interface:
	Add: Adds an interface to the port channel.
	Delete: Deletes an interface from the port channel.
Member Port	Specify a port:
	GigabitEthernet: Specifies a GigabitEthernet port.
	• 10GigabitEthernet: Specifies a 10GigabitEthernet port.
Load Balance	Define load balancing:
	• src-mac: Uses hash for the source MAC addresses for load
	balancing.
	• dst-mac: Uses hash for the destination MAC addresses for load
	balancing.
	• src-dst-mac: Uses hash for both the source and destination MAC
	addresses for load balancing.
	• src-ip: Uses hash for the source IP addresses for load balancing.
	• dst-ip: Uses hash for the destination IP addresses for load
	balancing.
	• src-dst-ip: Uses hash for both the source and destination IP
	addresses for load balancing.

Table 7.104 Buttons in the [Channel Group] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Channel Group]$

7-106 C122-E003-02EN

(2) GUI operation

- Interface addition
 - 1 Select a channel group number for the added interface.
 - 2 Select [Add] from [Operation].
 - 3 Select the interface to be added.
 - 4 Click the [Apply] button.

Note: If no port channel has been created, a port channel is automatically created, and the interface is added to it.

- Interface deletion
 - 1 Select the channel group number of the interface to be deleted.
 - 2 Select [Delete] in [Operation].
 - 3 Select the interface to be deleted.
 - 4 Click the [Apply] button.

Note: If no interface remains in the port channel after the interface is deleted, the definition of the port channel is deleted.

7.13 IGMP Snooping Menu

The [IGMP Snooping] menu is used to manipulate IGMP snooping and configure its settings.

7.13.1 Global Setting window

The [Global Setting] window configures IGMP snooping settings.

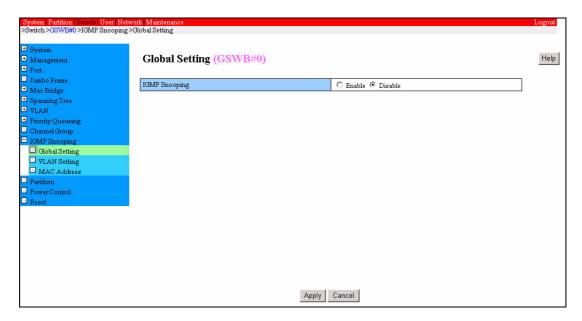


Figure 7.69 [Global Setting] window

Table 7.105 Displayed or setting item in the [Global Setting] window

Item	Description
IGMP Snooping	Specify Enable or Disable for IGMP snooping:
	Enable: Enables IGMP snooping globally.
	Disable (default): Disables IGMP snooping globally
	(throughout the entire device).

Table 7.106 Buttons in the [Global Setting] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

7-108 C122-E003-02EN

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [IGMP Snooping] \rightarrow [Global Setting]$

(2) GUI operation

- Setting
 - 1 Select Enable or Disable.
 - 2 Click the [Apply] button.

7.13.2 VLAN Setting window

The [VLAN Setting] window sets Enable or Disable for a specific VLAN:

- If IGMP is disabled in the VLAN, no router port can be specified.
- Any port that is not part of the VLAN cannot be defined as a router port.
- IGMP can be enabled in up to 110 VLANs.

The displayed items depend on whether a selection was made from the menu, a VLAN ID was selected, or an IGMP setting was changed.

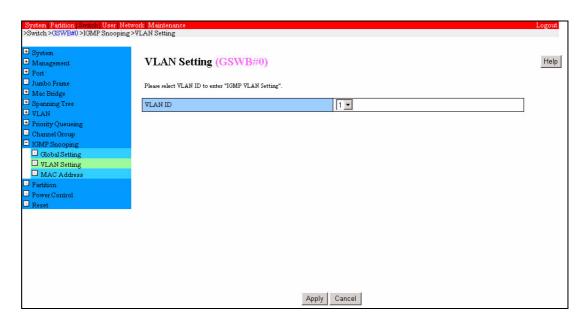


Figure 7.70 VLAN Setting window (after a selection is made from the menu)

Table 7.107 Displayed or setting item in the [VLAN Setting] window (after selection is made from the menu)

Item	Description
VLAN ID	Select a defined VLAN ID.
	Setting range: 1 to 4094 (default: 1)

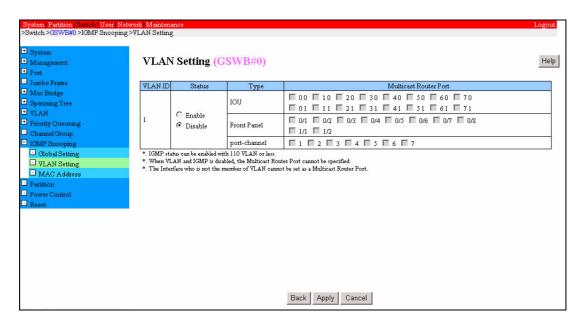


Figure 7.71 [VLAN Setting] window (after a VLAN ID is selected or an IGMP setting is changed)

Table 7.108 Displayed and setting items in the [VLAN Setting] window (after a VLAN ID is selected or an IGMP setting is changed)

Item	Description
VLAN ID	VLAN ID
Status	Specify Enable or Disable for the VLAN:
	• Enable: Enables IGMP snooping in the VLAN.
	• Disable (default): Disables IGMP snooping in the VLAN.
Router Port	Specify the interface:
	• IO_Unit: Specify the IO_Unit interface to be added to the router
	port.
	• Front Panel: Specify the front panel interface to be added to the router port.
	• port-channel: Specify port-channel to be added to the router
	port.

Table 7.109 Buttons in the [VLAN Setting] window

Button	Description
Help	Displays the Help window.
Back	Redisplays the window that is used when selecting VLAN IDs.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

7-110 C122-E003-02EN

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [IGMP Snooping] \rightarrow [VLAN Setting]$

(2) GUI operation

- VLAN-ID selection
 - 1 To specify or change a VLAN, select its VLAN ID from the pull-down menu.
 - 2 Clicking the [Apply] button displays the IGMP setting of the selected VLAN ID
- · Enabling IGMP
 - 1 Specify [Enable] in [Status].
 - 2 Click the [Apply] button.
- · Router port setting
 - 1 Check the check box of an interface that is part of the VLAN.
 - 2 Click the [Apply] button.

7.13.3 MAC Address window

The [MAC Address] window adds a layer-2 port into a multicast group.

- You need to enable IGMP snooping on the entire device and at the specified VLAN ID to add multicast addresses.
- The specified interface must be a member of the specified VLAN ID.
- You can specify up to 256 multicast MAC addresses.

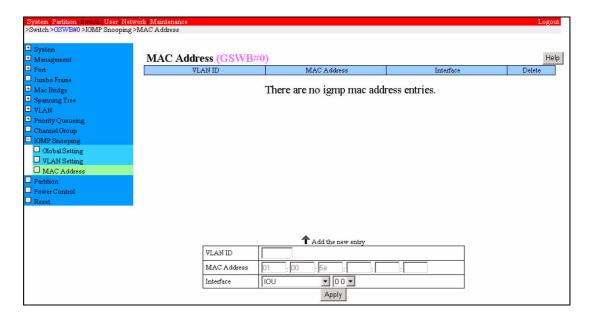


Figure 7.72 [MAC Address] window

Table 7.110 Displayed and setting items in the [MAC Address] window

Item	Description
VLAN ID	Specify a VLAN ID:
	• Setting range: 1 to 4094
MAC Address	Specify a multicast MAC address. The beginning of the MAC
	address is fixed with 01:00:5E. A value ranging from 0x00 to
	0x7F can be entered in the first field.
Interface	Select an interface (default: IO_Unit 00):
	• IOU: Select an IO_Unit (00 to 71).
	• GigabitEthernet: Specify GigabitEthernet (0/1 to 0/8).
	• 10GigabitEthernet: Specify 10GigabitEthernet (1/1 to 1/2) only
	if the 10G daughterboard is mounted.
	• port-channel: Specify a port-channel (1 to 7).
Delete	Check the check box corresponding to the entry to be deleted.

7-112 C122-E003-02EN

Table 7.111 Buttons in the [MAC Address] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [IGMP Snooping] \rightarrow [MAC Address]$

(2) GUI operation

- Addition
 - 1 Specify a multicast MAC address in the field for a new entry.
 - 2 Click the [Apply] button.
- Deletion
 - 1 Check the appropriate [Delete] check box. (Multiple check boxes can be checked.)
 - 2 Click the [Apply] button.

7.14 Partition Menu

7.14.1 Partition window

For specific settings (interface settings), Web-UI of GSWB retains partition setting values separately from the setting values on the GSWB. This partition setting window specifies whether partition setting values or IO_Unit setting values are selected as the actual interface settings.

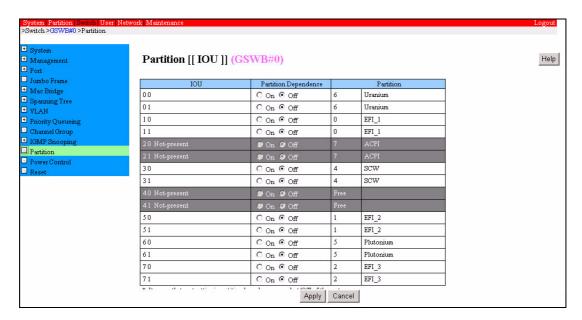


Figure 7.73 [Partition] window

Table 7.112 Displayed and setting items in the [Partition] window

Item	Description
IO_Unit	IO_Unit information
Partition Dependence	Specify whether to use the partition or interface:
	On: Uses the partition setting value.
	Off: Uses the interface setting value on the GSWB. The interface setting value is maintained even if the partition to which the
	interface belongs is changed. (Default)
Partition	Partition information

7-114 C122-E003-02EN

Table 7.113 Buttons in the [Partition] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Partition]$

(2) GUI operation

- 1 Specify whether to use partition or interface setting values.
- 2 Click the [Apply] button.

7.15 Power Control Menu

7.15.1 Power Control window

The [Power Control] window specifies whether to turn on or turn off power to the GSWB during an occasion such as GSWB replacement.



Figure 7.74 [Power Control] window

Table 7.114 Displayed or setting item in the [Power Control] window

Item	Description
Power Supply	Select whether to turn on or turn off power:
	• On: Turns on power (power-on).
	Off: Turns off power (power-off).

Table 7.115 Buttons in the [Power Control] window

Button	Description
Help	Displays the Help window.
Apply	Sets the specified values.
Cancel	Closes the window without saving the change.

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Power Control]$

7-116 C122-E003-02EN

(2) GUI operation

- Power-on
 - 1 Select [On].
 - 2 Click the [Apply] button.
 - 3 Restarting the GSWB takes several minutes. The following message is displayed at this time:
 - "GSWB is booting now. Please wait several minutes."
 - 4 The following message is displayed when this GSWB restart is completed: [GSWB Started.]
- · Power-off
 - 1 Select [OFF].
 - 2 Click the [Apply] button.
 - 3 The power-off confirmation window is displayed. Clicking the [OK] button turns off power.

Remarks: If GSWB#0 or GSWB#1 is clicked from a submenu in the [GSWB Status] window when the GSWB is powered off, the [Power Control] window is displayed so that the GSWB can be powered on.

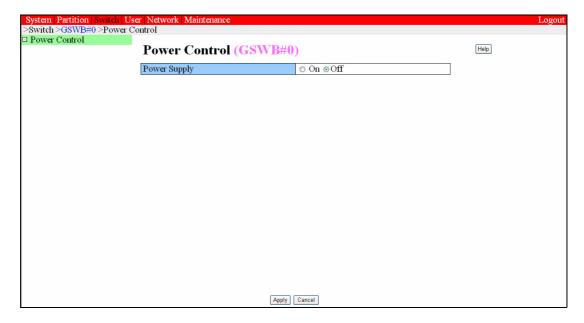


Figure 7.75 [Power Control] window (for a [GSWB Status] window operation)

7.16 Reset Menu

7.16.1 Reset window

When the configuration definition or firmware is updated, the GSWB must be restarted to use the updated files.

The [Reset] window restarts the GSWB, and this window can be used to specify that an initial diagnosis be run.

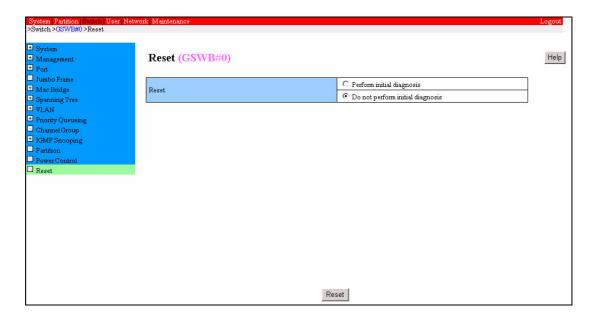


Figure 7.76 [Reset] window

Table 7.116 Displayed or setting item in the [Reset] window

Item	Description
Reset	Select whether to run an initial diagnosis at restart:
	• Perform initial diagnosis: Runs an initial diagnosis after restarting the GSWB.
	• Do not perform initial diagnosis (default): Restarts the GSWB without running an initial diagnosis.

Table 7.117 Buttons in the [Reset] window

Button	Description	
Help	Displays the Help window.	
Reset	Restart the GSWB.	

7-118 C122-E003-02EN

(1) Menu operation

 $[Switch] \rightarrow [GSWB#x] \rightarrow [Reset]$

(2) GUI operation

- Resetting
 - 1 Select whether to run an initial diagnosis.
 - 2 Click the [Reset] button.
 - 3 The restart confirmation window is displayed. Clicking the [OK] button restarts the GSWB.
 - 4 Restarting the GSWB takes several minutes, and the following message is displayed at this time:
 - "GSWB is rebooting now. Please wait several minutes."
 - 5 [GSWB Started.] is displayed when this GSWB restart is completed.

CHAPTER 8 CLI Operations

8.1 Basic CLI Operations

This section describes the command line interface (CLI) provided by the GSWB.

8.1.1 Operating environment

The operating environment needs to include a terminal that can be connected to the GSWB as a remote console. For details, see the *PRIMEQUEST 480/440 Installation Manual*. (C122-E001EN)

8.1.2 CLI access procedure

After the device is started, connect to the remote console (execute the [telnet] or [ssh] command). A [login] prompt appears. Enter the correct account name and password to log in.

8.1.3 CLI command modes

The commands are divided into operation commands, configuration definition commands, and editing commands. Operation commands display system status information and statistical information and clear statistical counters. The configuration definition and editing commands modify interface parameters and enable switching functions. In addition, the commands run in different modes. The available commands depend on the command mode selected.

Table 8.1 Command modes

Command type	Command mode	Prompt	Description
Operation commands	user exec	Switch>	General user mode
	enabled exec	Switch#	Highest mode for
			administrators

Command type	Command mode	Prompt	Description
Configuration	Global configuration	Switch (config)#	Mode for configuring
definition commands			settings for the whole
			device
	Interface	Switch (config-if)#	Mode for configuring
	configuration		interface settings
	Line configuration	Switch (config-line)#	Mode for configuring
			terminal line settings
	VLAN configuration	Switch (config-vlan)#	Mode for configuring
			VLAN settings
Editing commands	Global edit	Switch (edit)#	Mode for editing all
			device items
	Interface edit	Switch (edit-if)#	Mode for globally
			editing all interface
			items
	Line edit	Switch (edit-line)#	Mode for editing
			terminal line items
	VLAN edit	Switch (edit-vlan)#	Mode for editing
			VLAN items

Note: The above prompts are examples where the host name is "Switch".

After login to the GSWB, a transition to either of the command modes of the operation commands depends on the user privilege, as shown in the following table.

Table 8.2 User privileges and command modes

No.	User privilege	Operation command mode transition destination
1	LDAP user privilege user	user exec
2	LDAP admin privilege user	enabled exec

After a transition to enabled exec, the configure command can be used for a transition of a command mode of the configuration definition commands or the editing commands.

8-2 C122-E003-02EN

8.1.4 Interface designation and display

An interface name or port number can be used to specify an interface from the CLI.

For example, the following two commands have the same result.

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)#
```

```
Switch(config)# interface port 17
Switch(config-if)#
```

Table 8.3 Port numbers and interface names

Typo		GSWB		Web-UI
Туре	Port number	Interface name	ID	Interface name
	port 1	IO_Unit 0 0	00	IO_Unit 0 0
	port 2	IO_Unit 0 1	01	IO_Unit 0 1
	port 3	IO_Unit 1 0	02	IO_Unit 1 0
	port 4	IO_Unit 1 1	03	IO_Unit 1 1
	port 5	IO_Unit 2 0	04	IO_Unit 2 0
	port 6	IO_Unit 2 1	05	IO_Unit 2 1
	port 7	IO_Unit 3 0	06	IO_Unit 3 0
Back panel port	port 8	IO_Unit 3 1	07	IO_Unit 3 1
Back panel port	port 9	IO_Unit 4 0	08	IO_Unit 4 0
	port 10	IO_Unit 4 1	09	IO_Unit 4 1
	port 11	IO_Unit 5 0	10	IO_Unit 5 0
	port 12	IO_Unit 5 1	11	IO_Unit 5 1
	port 13	IO_Unit 6 0	12	IO_Unit 6 0
	port 14	IO_Unit 6 1	13	IO_Unit 6 1
	port 15	IO_Unit 7 0	14	IO_Unit 7 0
	port 16	IO_Unit 7 1	15	IO_Unit 7 1
	port 17	GigabitEthernet 0/1	16	GigabitEthernet 0/1
	port 18	GigabitEthernet 0/2	17	GigabitEthernet 0/2
	port 19	GigabitEthernet 0/3	18	GigabitEthernet 0/3
Front panel port	port 20	GigabitEthernet 0/4	19	GigabitEthernet 0/4
	port 21	GigabitEthernet 0/5	20	GigabitEthernet 0/5
	port 22	GigabitEthernet 0/6	21	GigabitEthernet 0/6
	port 23	GigabitEthernet 0/7	22	GigabitEthernet 0/7
	port 24	GigabitEthernet 0/8	23	GigabitEthernet 0/8
10G daughter port	port 25	TenGigabitEthernet 1/1	24	10GigabitEthernet 1/1
100 daugilier port	port 26	TenGigabitEthernet 1/2	25	10GigabitEthernet 1/2

Type	GSWB		Web-UI	
туре	Port number	Interface name	ID	Interface name
	port 27	port-channel 1	26	port-channel 1
	port 28	port-channel 2	27	port-channel 2
	port 29	port-channel 3	28	port-channel 3
Port channel	port 30	port-channel 4	29	port-channel 4
	port 31	port-channel 5	30	port-channel 5
	port 32	port-channel 6	31	port-channel 6
	port 33	port-channel 7	32	port-channel 7

8.1.5 Configuration definition command operations

This section describes operation in configuration definition mode and in global edit mode.

Configuration definition mode

This mode is used to change a definition currently in use.

Device behavior is modified according to the entered configuration definition command. When a valid command has been entered, its definition is immediately reflected in device behavior. However, the exec-timeout command is effective only in the behavior of terminals logged in afterwards.

Device behavior is modified without restarting the device when a configuration definition command is entered in configuration definition mode. Conversely, device behavior is not modified while the device is operating unless a configuration definition command is entered in configuration definition mode.

Global edit

This mode is used exclusively for editing the configuration definition file.

Even if a configuration definition command is entered, the current behavior of the device is not modified.

A new configuration definition or another configuration definition can be edited.

Setting mode	Prompt	Description
Configuration definition mode	Switch(config)#	The current behavior is
(Config mode)		modified.
Global edit (Edit mode)	Switch(edit)#	The current behavior is
		not modified.

8-4 C122-E003-02EN

In either mode, simply entering a configuration definition command does not modify the configuration definition information on flash memory.

The save command must be executed to save a modified configuration definition to ensure that the modified configuration definition is used the next time the device is started

8.1.5.1 Command input method and execution trigger

Uppercase letters, lowercase letters, or a combination of such characters must be used to enter a command name

Each command name or keyword can be abbreviated as long as the abbreviation does not match the abbreviation of another command name or keyword. For example, "show" can be abbreviated to "sh".

The applicable setting is modified when a command is entered in the CLI and the [Enter] key is pressed. However, if this document clearly states a specific trigger for a configuration definition command, device behavior is modified at the command-specific trigger.

8.1.5.2 Help function

If the question mark or [?] key, is pressed during entry of a command name or command parameter, a list of commands that begin with the entered string is displayed.

- *1 If the question mark (?) is entered without a space character during entry of a command name or command parameter, a selection of commands is displayed without explanations.
- *2 In the displayed help information of a selection of commands, "WORD" is displayed to indicate no selection of commands is available.

8.1.5.3 Tab-based complement function

If the [Tab] key is pressed during entry of a command, it adds the string that can be concatenated with the entered string.

If the trailing string can be determined uniquely, the string is added to the entered string.

If the trailing string cannot be determined uniquely, the string up to the common part is added to the entered string.

Parameters for which the input format is displayed in help information are not completed.

Only the current parameter is completed. The next parameter (or command name) is not completed.

8.1.5.4 Command editing function

This section describes how to specify and cancel commands.

• Specifying a command

To specify a command, switch to a command mode in which the command can be specified, enter it in the CLI, and press the [Enter] key.

• Canceling a command (no)

To cancel a command, enter "no" in front of the command in the CLI, and execute it.

Subcommands can be canceled in submode.

Any subcommand that is specified under a command is also canceled when the command is canceled.

8.1.5.5 Command selection display function

When the show command is executed, the command selection display function displays the commands that can be specified in the current mode.

If the command is executed with part of a command name or command parameter entered after "show", only the commands that match the specified parameter are displayed.

Any subcommand that is specified under a command is also displayed when the command is displayed.

8.1.5.6 Error messages

The appropriate action to be taken for a configuration definition command error depends on the detected location and contents of the error message. The following table lists the error messages that are common to all of the configuration definition commands. For other error messages, see the command descriptions.

8-6 C122-E003-02EN

Error message	Cause	Action to be taken
% Incomplete command.	Invalid command entered	Enter a correct command
		string.
% Invalid input detected at	Invalid character detected at	Enter a correct command
'^' marker.	the '^' marker in the command	string.
	input string	
% Unrecognized command	An invalid command was	Check the entered command.
	entered. "?" is in the middle of	
	the entered string.	
% Ambiguous command:	An unrecognizable command	Check the entered command.
"XXX"	abbreviation was entered (e.g.,	
XXX: Entered command	open c?).	
No Memory	Insufficient memory	Restart the device.
Fatal error	A fatal error occurred.	Restart the device. Replace the
		firmware.

Table 8.4 Error messages of the configuration definition commands

8.1.5.7 Special input format and display format

Function keys

The following input has special functions in configuration definition editing:

- Pressing the [Ctrl]+[c] keys
 If they are pressed during execution of a configuration definition command, the system returns to the prompt without waiting for the command to be completed.
- Pressing the [Ctrl]+[v] keys
 If the [?] key is pressed next, "?" is entered as a character without displaying help information.
- Pressing the [Ctrl]+[z] keys
 This terminates the configure command.
- Pressing the [!] key
 If "cr" is entered next, a transition occurs to the configuration mode one layer above.

Characters handled as special characters

Since the configuration definition commands consider the following characters to be special characters, their input and display formats differ from those for ordinary characters.

```
{ } = # ! " \ ? <tab> feed> <space>
```

Input and display formats of special characters

Special characters can be entered for parameters that have "WORD" displayed for them in displayed help information, if use of such characters is not restricted by the applicable command.

The input and display formats of special characters are described below.

For simplicity, parameters containing special characters are referred to as "tokens."

- A token can be specified by enclosing the entire token between double quotation marks ("). Double quotation marks are not handled as specified characters.
- Each token must be enclosed by double quotation marks. If a token not enclosed by double quotation marks is entered, it is displayed with double quotation marks enclosing it.
- The backslash character is used as the escape character for input of the following characters:
 - Double quotation mark ("): backslash character + double quotation mark [\"]
 - Backslash character (\): backslash character + backslash character [\\]
 - Tab character (<tab>): backslash character + t [\t]
 - Line feed character (<line feed>): backslash character + n [\n]

The backslash character is considered the escape character only in a token enclosed by double quotation marks. The backslash character in a token not enclosed by double quotation marks is handled as a specified character.

- If a character that is not intended for escape input (any character other than ", \, t, and n) is entered after the escape character (backslash character in a token enclosed by double quotation marks), the escape character (backslash character) is ignored.
- To enter "?", first press the [ctrl]+[v] keys (ASCII code: 0x16 in hexadecimal notation) and then the [?] key. The combination of [ctrl] + [v] itself is not considered an input character.
- A token that contains a double quotation mark not accompanied by the escape character is not a valid token.
- A token that consists of only one backslash character is not a valid token.

Table 8.5 Examples of input

Input	Output (show)	Internally processed string
Abc	abc	Abc
abc {}=#!	"abc{}=#!"	abc{}=#!
\	"\\"	\
\"	"///""	\"
//	"////"	//

8-8 C122-E003-02EN

Input	Output (show)	Internally processed string
\t\n	"\\t\\n"	\t\n
abc\def	"abc\\def"	abc\def
abc?def (Press the [Ctrl]+[v]	"abc?def"	abc?def
keys immediately before the		
[?] key)		
abc"def	abc\"def	abc"def
"abc"	abc	Abc
"abc {}=#!"	"abc[]=#!"	abc[]=#!
"\" Error!!		
"\""	"\""	"
"\t\n"	"\t\n"	<tab>feed></tab>
"abc\def"	abcdef	abcdef
"abc"def" Error!!		
"abc def"	"abc def"	abc def
" abc"	" abc"	abc
"abc "	"abc "	abc

8.1.6 Operation command operations

The operation commands can be executed in the following two command modes:

· user exec

This mode is intended for general users. A limited set of commands is available, such as the command that displays network information.

· enabled exec

This mode is intended for SEs and system administrators. All commands are available.

The session for a remote console is terminated when the quit command is executed in logged-in command mode.

A transition to a command mode with a lower privilege than that in logged-in command mode is not permitted.

Example:

After login to enabled exec, a transition to user exec is not permitted.

8.1.6.1 Input string requirements

The following requirements apply to command input strings:

- All entered characters must be en-size characters.
- Only uppercase and lowercase alphabetic characters, numeric characters, symbols, and the space character can be used.
- Alphabetic characters are treated as case-insensitive. (However, passwords are case-sensitive.)
- One space character must be entered between tokens. (Two or more space characters are recognized as one space character.)

8.1.6.2 Competition between commands

If executing of a command would cause resource access conflict, such as if the same command as a currently running command is entered, the command is not executed.

8.1.6.3 Help function

If the question mark or [?] key is pressed when only the shell prompt is displayed, the available commands in the user's current command mode are displayed together with simple descriptions.

If the [Space] and [?] keys are pressed during entry of a command, simple descriptions of the options and parameters that can follow the entered string are displayed.

8.1.6.4 Command name abbreviation function

A command name can be abbreviated as long as the abbreviation does not match the abbreviation of another command name. For example, "rel" can be entered as an abbreviation for the reload command.

Since the available commands vary depending on the command class and command mode, their abbreviations may be different.

8-10 C122-E003-02EN

8.1.6.5 Termcap support

Even after login from a different type of console, terminal settings are adjusted for the connected terminal.

The defined terminal settings are used after login from a remote terminal. The show terminal command can be used to check terminal settings.

If the terminal size is changed after login, the string editing function does not work correctly because the change cannot be automatically recognized.

8.1.6.6 Display termination function with the [Ctrl]+[c] keys

Command processing can be terminated by pressing the [Ctrl]+[c] keys during execution of the command.

*: Processing of some commands such as the Install command cannot be terminated.

8.1.6.7 String editing function using function keys

Strings entered from a terminal can be edited with function key ([Ctrl] + alphabet key) input.

Table 8.6 Function keys

Function key	Function
[Ctrl] + [a]	Moves the cursor to the beginning of the line.
[Ctrl] + [b]	Moves the cursor forward by one word.
[Ctrl] + [c]	Suspends input.
[Ctrl] + [d]	Deletes the character at the cursor position.
[Ctrl] + [e]	Moves the cursor to the end of the line.
[Ctrl] + [f]	Moves the cursor backward by one word.
[Ctrl] + [h]	Deletes the character preceding the cursor.
[Ctrl] + [i]	Complement (equivalent to the [Tab] key)
[Ctrl] + [j]	Input end (equivalent to the [Enter] key)
[Ctrl] + [k]	Deletes all characters at and after the cursor
	position.
[Ctrl] + [l]	Initializes the display.
[Ctrl] + [m]	Input end (equivalent to the [Enter] key)
[Ctrl] + [n]	Displays the newer history item.
[Ctrl] + [p]	Displays the older history item.
[Ctrl] + [r]	Updates the display.

Function key	Function
[Ctrl] + [t]	Exchanges the character at the cursor position with
	the previous character.
[Ctrl] + [u]	Deletes the characters between the beginning of
	the line and the cursor position.
[Ctrl] + [w]	Deletes the word preceding to the cursor position.
[Ctrl] + [x]	Deletes the characters between the beginning of
	the line and the cursor position.
[Ctrl] + [y]	Inserts input at the cursor position.

* The tab-based complement function and function keys can be used on terminals of the ANSI system, VT100 system, VT200 system, KTERM, XTERM, CON25, LINUX, or SCREEN type. The show terminal status command can be used to check the current terminal type.

8.1.6.8 History function

The command input strings entered from a console (remote console) can be saved and displayed as history.

The saved history consists of the last commands entered, up to 32 commands. The maximum length of the command on one line is 1024 characters, including the linefeed character. History is saved separately for each shell.

Pressing the [Ctrl]+[p] keys from the CLI displays the previous command. Pressing the [Ctrl]+[n] keys displays the next command. In the former case, if there is no previous command, the oldest command remains displayed; in the latter case, if there is no next command, the latest command remains displayed.

8.1.6.9 Pager function

If one screen does not accommodate all contents to be displayed, the contents can be displayed using successive screens on the terminal.

The terminal pager command can set ON or OFF for the pager function and be used to check this setting. Initially the pager function is not enabled.

If the pager function is enabled, the displayed contents are as follows:

- A screenful of output information (strings) is displayed.
- If "--More--" is displayed together with the contents of a screen, it indicates a wait for input from the console.

8-12 C122-E003-02EN

• When "--More--" is displayed, if the [Enter] key is pressed, the screen scrolls up one line. If the space character is entered, the next screen is displayed. Pressing the [q] key or [Q] key quits the display. If the [g] key or [G] key is pressed, the last screen of the contents is displayed.

8.1.6.10 Tab-based complement function

If the [Tab] key is pressed during entry of a command, it adds the string that can be concatenated with the entered string.

Example: terminal command

Switch# termi<tab>

- > Switch# terminal
- * The tab-based complement function and function keys can be used on terminals of the ANSI system, VT100 system, VT200 system, KTERM, XTERM, CON25, LINUX, or SCREEN type. The show terminal status command can be used to check the current terminal type.

8.1.6.11 Error messages

If the [Enter] or [?] key is pressed during entry of an operation command and the string is not recognized, an error message is displayed. The following table lists the error messages that are common to all of the operation commands.

Table 8.7 Error messages of the operation commands

Error message	Error cause	Action to be taken
% Unrecognized command	An invalid command and "?"	Check the entered command.
	were entered.	
% Ambiguous command:	An unrecognizable command	Check the entered command.
"XXX"	abbreviation was entered	
XXX: Entered command	(e.g., open c?).	
No Memory	Insufficient memory	Restart the device.
Fatal error	A fatal error occurred.	Restart the device. Replace
		the firmware.

8.1.7 Lists of CLI commands

This section describes the configuration definition commands and the operation commands separately. This device uses the general user access privilege and administrator access privilege. The command modes available to the general users differ from those available to the administrators. "Y" indicates an available command, and "-" indicates that the command is not available.

Notes:

- 1. Users in general are referred to as the general users. The general users can use a limited set of commands, such as the command that displays network information.
- 2. SEs and system administrators are referred to as the administrators. The administrators can use all commands.

8.1.7.1 Lists of the configuration definition commands

The following tables list the available configuration definition commands.

Command General user Administrator Functional outline Y Starts editing of the open configuration definition file. Y Y Ends editing of the close configuration definition file. save Y Y Saves the configuration definition file being edited. Y Copies the configuration save config definition file to the work area. Y Overwrites the configuration restore config definition file with the contents in the work area. Y Creates a new configuration new definition file and starts its editing.

Table 8.8 Configuration definition management

8-14 C122-E003-02EN

Table 8.9 Mode change

Command	General user	Administrator	Functional outline
configure	-	Y	Used for editing system
			configuration such as device
			and network configurations.
exit	Y	Y	Returns to the previous
			command mode.
			Alternatively, the current
			command mode is exited.
show	-	Y	Displays configuration
			definition contents.

Table 8.10 Flow control function

Command	General user	Administrator	Functional outline
flowcontrol	-	Y	Defines flow control.

Table 8.11 Jumbo frame function

Command	General user	Administrator	Functional outline
jumbo frame	-	Y	Enables or disables the jumbo
			frame.

Table 8.12 Rate control function

Command	General user	Administrator	Functional outline
storm-control	-	Y	Enables or disables rate
			control. It also sets the
			threshold.

Table 8.13 Host function (address definition)

Command	General user	Administrator	Functional outline
ip host	-	Y	Specifies the IP address setting
			or how to acquire it.
ip default-gateway	-	Y	Sets the IP address of the
			default gateway.
hostname	-	Y	Sets the device name.

Table 8.14 MAC bridge function

Command	General user	Administrator	Functional outline
mac address-table aging-	-	Y	Sets the aging time.
time			

Command	General user	Administrator	Functional outline
mac address-table static	-	Y	Adds and deletes static
			addresses to the MAC address
			table.

Table 8.15 Spanning tree protocol (STP) function

Command	General user	Administrator	Functional outline
spanning-tree	-	Y	Enables or disables STP for the
			whole device.
spanning-tree priority	-	Y	Sets the bridge priority.
spanning-tree max-age	-	Y	Sets the maximum aging time.
spanning-tree hello-time	-	Y	Sets the transmission interval
			of Hello messages.
spanning-tree forward-	-	Y	Sets the transfer delay timer.
time			
spanning-tree port-	-	Y	Sets the port priority.
priority			
spanning-tree cost	-	Y	Sets the interface path cost.
spanning-tree bpdufilter	-	Y	Defines the BPDU filter.
spanning-tree	-	Y	Enables or disables the
			spanning tree protocol for the
			specified interface.

Table 8.16 Virtual LAN (VLAN) function

Command	General user	Administrator	Functional outline
vlan	-	Y	Creates and deletes VLANs.
switchport access vlan	-	Y	Specifies an interface for a VLAN.
switchport mode	-	Y	Sets the selected VLAN membership mode for an interface.
switchport allowed vlan	-	Y	Sets trunk properties.
switchport native vlan	-	Y	Specifies a VLAN that receives traffic without tags.

Table 8.17 Priority control function (Class of Service)

Command	General user	Administrator	Functional outline
switchport priority	-	Y	Sets the default priority to
default			frames without tags.

8-16 C122-E003-02EN

Command	General user	Administrator	Functional outline
wrr-queue cos-map	-	Y	Defines the correspondence
			between user priorities and the
			CoS Queue.

Table 8.18 Port trunking function

Command	General user	Administrator	Functional outline
interface port-channel	-	Y	Creates and deletes channel
			groups.
channel-group	-	Y	Adds and deletes physical links
			in a channel group.
port-channel load-	-	Y	Specifies the method of load
balance			balancing among physical
			links in a trunk group.

Table 8.19 IGMP snooping function

Command	General user	Administrator	Functional outline
ip igmp snooping	-	Y	Enables or disables IGMP
			snooping.
ip igmp snooping vlan	-	Y	Enables IGMP snooping in a
			specific VLAN.
ip igmp snooping vlan	-	Y	Specifies a multicast router
mrouter			port.
ip igmp snooping vlan	-	Y	Adds a layer-2 port to a
static			multicast group.

Table 8.20 Port mirroring function

Command	General user	Administrator	Functional outline
monitor session source	-	Y	Specifies the monitored ports.
monitor session	-	Y	Specifies the mirror port.
destination			

Table 8.21 Interface

Command	General user	Administrator	Functional outline
interface	-	Y	Specifies an interface.
shutdown	-	Y	Disables an interface.
speed	-	Y	Sets the port speed.
duplex	-	Y	Sets the duplex mode.

Table 8.22 Access restriction function

Command	General user	Administrator	Functional outline
remote-access	-	Y	Defines host or network
			conditions to allow remote
			connections.

Table 8.23 Console

Command	General user	Administrator	Functional outline
line	-		Specifies a line for a connection.
exec-timeout	-	Y	Sets the console timeout time (telnet, ssh).

Table 8.24 SNMP

Command	General user	Administrator	Functional outline
snmp-server engineID	-	Y	Sets the SNMP engine ID of a
local			local device.
snmp-server location	-	Y	Specifies the installation
			location of a local device.
snmp-server contact	-	Y	Sets the contact address of a
			local device.
snmp-server user	-	Y	Specifies the connected user
			from a server using SNMP v3.
snmp-server host	-	Y	Specifies the host whose MIB
			information is to be acquired or
			manipulated.
snmp-server enable traps	-	Y	Enables trap transmission to
			the specified host. It also
			specifies the transmission
			notification type.

Table 8.25 LDAP

Command	General user	Administrator	Functional outline
ldap server	-	Y	Specifies an Idap server.
ldap dn	-		Specifies the base DN for searches.
ldap ssl	-	Y	Enables Idap over ssl.

8-18 C122-E003-02EN

Table 8.26 telnet

Command	General user	Administrator	Functional outline
telnet enable	-	Y	Enables or disables telnet.

Table 8.27 ssh

Command	General user	Administrator	Functional outline
ssh enable	-	Y	Enables the ssh server using
			the specified protocol.

Table 8.28 ntp

Command	General user	Administrator	Functional outline
ntp server	-	Y	Registers an NTP server. It
			also synchronizes the system
			clock and hardware clock with
			the NTP server.
ntp status	-	Y	Sets the interval of inquiries to
			an NTP server.

Table 8.29 Log

Command	General user	Administrator	Functional outline
logging on	-	Y	Enables or disables message
			log (mlog) collection.
logging level	-	Y	Sets the collection level of the
			message log (mlog).
logging host	-	Y	Sets the IP address of the log
			transfer destination.

8.1.7.2 Lists of the operation commands

The following tables list the available operation commands.

Table 8.30 Console-related commands

Command	General user	Administrator	Functional outline
clock set	-	Y	Sets the current time.
show clock	Y	Y	Displays the current time.
show filelist	-	Y	Displays a directory
			information list for the
			specified file system.
show history	Y	Y	Lists the commands previously
			entered in an interactive shell.
terminal pager	Y	Y	Enables or disables the pager
			function.
showterminal	Y	Y	Displays basic terminal output
			settings.
quit	Y	Y	Quits the currently active shell.
telnet	Y	Y	Communicates with other
			hosts using the TELNET
			protocol.
ssh	Y	Y	User interface for SSH
tftp	-	Y	User interface for TFTP

Table 8.31 Device-related commands

Command	General user	Administrator	Functional outline
change	-	Y	Specifies the operation
			program used at restart with
			the change program command.
			It also specifies the
			configuration definition file
			used at restart with the change
			config command.
clear config	-	Y	Clears the configuration
			definition command file.
install	-	Y	Installs the system files in
			areas not used for startup.
reload	-	Y	Restarts the device.
show globalmac	Y	Y	Displays MAC information.
show memory	-	Y	Displays the status of different
			types of memory resources.

8-20 C122-E003-02EN

Command	General user	Administrator	Functional outline
show processes	Y	Y	Displays CPU usage and other
			detailed information.
show system	Y	Y	Displays device static
information			information.
show system status	Y	Y	Displays device dynamic
			information.
clear ramdisk	-	Y	Clears all work areas used by
			tftp.
eeprominit	-	Y	Deletes SDR/SEL information.

Table 8.32 Port-related commands

Command	General user	Administrator	Functional outline
show interface status	Y	Y	Displays interface status
			information.
show interface counters	Y	Y	Displays interface statistical
			information.
show interface	Y	Y	Displays interface settings.
switchport			
show monitor session	Y	Y	Displays the port mirroring
			configuration.
show portstat	Y	Y	Displays the logical port status.
show port-channel	Y	Y	Displays port channel setting
			information.

Table 8.33 IP-related commands

Command	General user	Administrator	Functional outline
ip dhcp restart	-	Y	Sends a BOOTP or DHCP
			client request.
clear arp	-	Y	Deletes dynamic ARP entries
			from the ARP table.
ping	Y	Y	Determines whether
			communication with the host
			of the specified IP address is
			possible.
show arp	Y	Y	Displays ARP table entries.
show ip	Y	Y	Displays the IP information.
show ip default-gateway	Y	Y	Displays the default gateway.

Command	General user	Administrator	Functional outline
show ip host	Y	Y	Displays the IP interface information and status.
show ip socket	Y	Y	Displays the socket information and status.
traceroute	Y	Y	Examines the routes on which packets are transmitted to their destinations.

Table 8.34 VLAN-related command

Command	General user	Administrator	Functional outline
show vlan	Y	Y	Displays configuration
			information about all
			registered VLANs.

Table 8.35 Bridge-related commands

Command	General user	Administrator	Functional outline
show bridge	Y	Y	Displays the learning table.
show bridge summary	Y	Y	Displays the number of entries registered in the learning table.
show bridge aging-time	Y	Y	Displays the amount of time that the MAC address table retains entries.
clear bridge	-	Y	Deletes the learning table.

Table 8.36 STP-related commands

Command	General user	Administrator	Functional outline
show spanning-tree	Y	Y	Displays the STP status.
show spanning-tree statistics	Y	Y	Displays STP statistical information.
clear spanning-tree	-		Clears STP statistical information.

8-22 C122-E003-02EN

Table 8.37 Log-related command

Command	General user	Administrator	Functional outline
clear logging error	-	Y	Clears the contents currently
			stored in the error log.
clear logging line	-	Y	Clears the contents currently
			stored in the line log.
clear logging message	-	Y	Clears the contents currently
			stored in the message log.
clear logging trap	-	Y	Clears the contents currently
			stored in the trap log.
show logging error	-	Y	Displays the contents currently
			stored in the error log.
show logging line	-	Y	Displays the contents currently
			stored in the line log.
show logging message	-	Y	Displays the contents currently
			stored in the message log.
show logging trap	-	Y	Displays the contents currently
			stored in the trap log.
show logging	-	Y	Displays the syslog setting.

Table 8.38 Filtering/QoS-related commands

Command	General user	Administrator	Functional outline
show remote-access	Y	Y	Displays the host or network conditions that allow remote connections.
show storm-control	Y	Y	Displays broadcast, multicast, or DLF storm control settings.
show wrr-queue cos- map	Y	Y	Displays the mapping of the CoS priority queue.

Table 8.39 Statistics management

Command	General user	Administrator	Functional outline
show ether statistics	Y	Y	Displays Gigabit Ether and
			10Gigabit Ether statistical
			information.
clear ether statistics	Y	Y	Deletes Gigabit Ether and
			10Gigabit Ether statistical
			information.

Table 8.40 IGMP-related commands

Command	General user	Administrator	Functional outline
show ip igmp snooping	Y	Y	Displays snooping information
			about all VLANs or a specified
			VLAN.
show ip igmp snooping	Y	Y	Displays the multicast router
mrouter			interface information learned
			dynamically or manually set.
show mac address-table	Y	Y	Displays the layer-2 MAC
multicast			address table entries
			corresponding to a VLAN.
show ip igmp snooping	Y	Y	Displays IGMP snooping
statistics			statistical information.
clear ip igmp snooping	Y	Y	Clears the counts of received
statistics			and discarded IGMP packets.

Table 8.41 LDAP-related command

Command	General user	Administrator	Functional outline
show ldap	Y		Displays LDAP setting information.

Table 8.42 SNMP-related command

Command	General user	Administrator	Functional outline
show snmp-server	Y	Y	Displays snmp setting
			information.

Table 8.43 SSH-related commands

Command	General user	Administrator	Functional outline
ssh keygen	-	Y	Generates RSA/DSA keys
			used by ssh.
ssh keydel	-	Y	Deletes RSA/DSA keys used
			by ssh.
show ssh	-	Y	Displays the enable/disable setting of the ssh server and the
			server settings.

Table 8.44 NTP-related command

Command	General user	Administrator	Functional outline
show ntp	Y	Y	Displays NTP setting
			information.

8-24 C122-E003-02EN

8.2 Configuration Definition Commands

This section describes the configuration definition commands.

8.2.1 Configuration definition management commands

The configuration definition management commands manipulate the configuration definition file.

8.2.1.1 open

This command starts editing of the configuration definition file.

(1) Synopsis

```
open {config0 | config1}
```

(2) Options

- {config0 | config1}
 - config0: Specifies config0.
 - config1: Specifies config1.

(3) Command mode

Global configuration

(4) See also

close

exit

(5) Examples

· Starts editing of the configuration definition file

```
Switch# open config0
Switch(edit)#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Open error.

Cause: The specified configuration definition file does not exist.

Action: Use the [save config] command to save the configuration definition file.

· File error.

Cause: The specified configuration definition file is corrupt.

Action: Save the configuration definition file again.

8.2.1.2 close

This command ends editing of the configuration definition file.

(1) Synopsis

close

(2) Options

None

(3) Command mode

Global edit

(4) See also

open

8-26 C122-E003-02EN

(5) Examples

· Ends editing of the configuration definition file

```
Switch(config) # open config0
Switch(edit) # close
Switch(config) #
```

(6) Error Messages

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.2.1.3 save

This command saves the currently edited configuration definition to the file.

Note: This command cannot be executed during execution of the restore config, save, save config, or clear config command.

(1) Synopsis

```
save {config0 | config1} [<comment>]
```

(2) Options

- {config0 | config1}
 - config0: Specifies config0.
 - config1: Specifies config1.
- <comment> (optional): Sets configuration definition file comments.

To include space characters in a comment, the entire comment must be enclosed by double quotation marks ("). If the line feed character (\n) or tab character (\t) is specified in the comment string enclosed by double quotation marks, a parameter error occurs (Input parameter error). Comments in the configuration definition file (config0 or config1) can be checked using an operation command (show system information).

Note:

Up to 63 characters can be entered in a comment. The \character (\\) and the "character (\") in the character string enclosed by double quotation marks are considered single characters. The end of comments may not be displayed by the show system information command, depending on the display format. Thus, entering comment strings ranging from 40 to 50 characters is recommended.

(3) Command mode

Global

Line

Interface

VLAN

(4) See also

clear config

restore config

save config

show system information

(5) Examples

Saves a configuration definition

```
Switch(config) # save config0
Are you sure? [y/n]:Y
Now perform...
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-28 C122-E003-02EN

Input parameter error.

Cause: An invalid parameter was entered.

Action: Enter the correct parameter.

· Command is already running.

Cause: One of the following commands is running.

restore config / save / save config / clear config

Action: Reexecute after exiting the command.

8.2.1.4 save config

This command copies the configuration definition file to the work area. If the work area contains a file with the same name (config0, config1), the existing file is overwritten.

Note: This command cannot be executed during execution of the clear config, clear ramdisk, restore config, save, save config, or tftp command.

(1) Synopsis

· Copies the configuration definition file to the work area

```
save config [{config0 | config1}]
```

(2) Options

- {config0 | config1} (optional)
 - config0: Specifies config0.
 - config1: Specifies config1.

By default, the configuration definition file of the booting memory bank is copied to the work area.

(3) Command mode

enabled exec

(4) See also

clear config

clear ramdisk

restore config

save

tftp

(5) Examples

 Copies the configuration definition file of the booting memory bank to the work area

```
Switch# save config
Switch#
```

· Copies configuration definition file config0 to the work area

```
Switch# save config config0
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Open error.

Cause: The specified configuration definition file does not exist.

Action: Make sure the configuration definition file exists.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Command is already running.

Cause: One of the following commands is running. clear config / clear ramdisk / restore config / save / save config / tftp

Action: Reexecute after exiting the command.

8-30 C122-E003-02EN

8.2.1.5 restore config

This command overwrites the configuration definition file with the contents in the work area.

Note: This command cannot be executed during execution of the clear config, clear ramdisk, restore config, save, save config, or tftp command.

(1) Synopsis

```
restore config {config0 | config1}
```

(2) Options

- {config0 | config1}
 - config0: Overwrites config0 with the contents in the work area.
 - config1: Overwrites config1 with the contents in the work area.

(3) Command mode

enabled exec

(4) See also

```
clear config
clear ramdisk
save
save config
tftp
```

(5) Examples

Overwrites config0 with the contents in the work area

```
Switch# restore config config0
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Open error.

Cause: The specified configuration definition file does not exist.

Action: Make sure the configuration definition file exists.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Command is already running.

Cause: One of the following commands is running.

clear config / clear ramdisk / restore config / save / save config / tftp

Action: Reexecute after exiting the command.

8.2.1.6 new

This command creates a new configuration definition file and allows you to edit it.

When you finish editing the file, execute the save command to save the configuration definition file.

The saved configuration will be effective when the device is restarted.

(1) Synopsis

2011	
new	

8-32 C122-E003-02EN

(2) Options

None

(3) Command mode

Global configuration

(4) See also

save

close

exit

(5) Examples

· Create a new configuration definition file and start editing it.

Switch(config)# new

Switch(edit)#

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.2.2 Mode change commands

8.2.2.1 configure

This command is used to edit system information such as device and network configurations.

If the command is executed after the device is started when its status is Config Error, a transition to edit mode occurs automatically.

The command can be executed when the device status changes to Online or Config Error.

(1) Synopsis

configure

(2) Options

None

(3) Command mode

enabled exec

(4) See also

exit

(5) Examples

```
Switch# configure
Switch(config)#
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Not ready confguration management task.

Cause: An internal error occurred.

8-34 C122-E003-02EN

Action: Collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.2.2 exit

This command causes a transition to the previous command mode or exits the current command mode. If the command is executed in global configuration mode, editing of all configuration definitions being edited is terminated, and the associated configuration definition command is terminated.

(1) Synopsis

exit

(2) Options

None

(3) Command mode

All

(4) See also

configure

open

(5) Examples

· Returns to the previous command mode or exits the current command mode

```
Switch(config-if)# exit
Switch(config)# exit
Switch# exit
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.2.2.3 show

This command displays configuration definition contents. If the mode has been changed, only the definition contents available in the mode are displayed. You cannot use the [Ctrl]+[c] key combination to interrupt the command.

(1) Synopsis

```
show [<command-line>]
```

(2) Options

 <command-line>: Specifies the command line that can be used in the current mode. If this option is omitted, the command will display all configuration definitions.

(3) Command mode

Global

Interface

Line

VLAN

(4) See also

None

(5) Examples

Displays the hostname definition

```
Switch(config) # show hostname
hostname Switch
Switch(config) #
```

8-36 C122-E003-02EN

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.2.3 Flow control definition

8.2.3.1 flowcontrol

This command defines flow control. However, no settings can be made for a channel group.

(1) Synopsis

```
flowcontrol {receive | send} {off | on}
```

(2) Options

- {receive | send}
 - receive: Specifies whether an interface receives flow control packets from a remote console.
 - send: Specifies whether an interface sends flow control packets to a remote console.
- {off | on}
 - off:

If [receive] is off, the function used by the connected device to send flow control packets to the interface is turned off.

If [send] is off, the function used by a local port to send flow control packets to a remote device is turned off.

- on:

If [receive] is on, the interface can operate with:

- Connected devices that must send flow control packets
- Connected devices that need not send flow control packets but can still send them

If [send] is on, the interface can send flow control packets to the remote devices that support flow control.

Both [receive] and [send] are off by default.

(3) Command mode

Interface

(4) See also

show interface counters

show portstat

(5) Examples

· Disables flow control

```
Switch(config-if)# flowcontrol receive off
Switch(config-if)# flowcontrol send off
Switch(config-if)#
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

8-38 C122-E003-02EN

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.4 Jumbo frame function

8.2.4.1 jumbo frame

This command enables or disables the jumbo frame. If the jumbo frame is enabled, the frame sizes in all units along the communication routes must match.

(1) Synopsis

· Enables the jumbo frame

```
jumbo frame
```

Disables the jumbo frame (default)

```
no jumbo frame
```

(2) Options

None

(3) Command mode

Global

(4) See also

None

(5) Examples

· Enables the jumbo frame

```
Switch(config) # jumbo frame
Switch(config) #
```

· Disables the jumbo frame

```
Switch(config) # no jumbo frame
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

8-40 C122-E003-02EN

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.5 Rate control function

8.2.5.1 storm-control

This command enables or disables rate control. The command also sets the threshold for rate control.

However, TenGigabitEthernet 1/1 to 1/2 and channel groups cannot be specified.

(1) Synopsis

Sets the rate control threshold

```
storm-control {broadcast | multicast | dlf} threshold <pps>
```

Disables rate control settings

```
no storm-control {broadcast | multicast | dlf} threshold
```

(2) Options

- {broadcast | multicast | dlf}
 - broadcast: Enables broadcast storm control on a port.
 - multicast: Enables multicast storm control on a port.
 - dlf: Enables DLF storm control on a port.
- <pps>: Specifies the threshold (pkts/sec).
 - Setting range: 1 to 262143
 - Default: Disabled

(3) Command mode

Interface

(4) See also

None

(5) Examples

 Enables broadcast storm control on a port and sets the upper limit to 10000 pkts/ sec

```
Switch(config-if)# storm-control broadcast threshold 10000
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: SynopsisInvalid character detected at '^' marker in the entered command

string

Action: Enter the command string correctly.

· Internal communication error.

Cause: SynopsisAn internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-42 C122-E003-02EN

8.2.6 Host functions (address definition)

8.2.6.1 ip host

This command specifies an IP address or how to acquire it. Only one IP address can be specified for the device.

If no VLAN is specified, the default VLAN (vlan id 1) is set. The default ip-address is 0.0.0.0, and the default subnet mask is 0.0.0.0.

The IP address cannot be reset to the default value while ip default-gateway is set.

If you specify ip host bootp/dhcp, you need to execute ip dhcp restart.

(1) Synopsis

Specifies an IP address or how to acquire the address

```
ip host {<ip-address> <subnet-mask> | bootp/dhcp} [vlan <vlan-id>]
```

· Sets an IP address to the default value

```
no ip host
```

(2) Options

- {<ip-address> <subnet-mask> | bootp/dhcp}
 - <ip-address>: Sets the IP address statically.
 - <subnet-mask>: Specifies the subnet mask.
 - bootp/dhcp: Sets the dynamic IP address automatically by DHCP.
- vlan <vlan-id> (optional): Specifies a VLAN.
 If this option is omitted, VLAN(vlanid1) is assumed by default.

(3) Command mode

Global

(4) See also

```
ip dhcp restart
ip default-gateway
vlan
```

(5) Examples

· Sets an IP address statically

```
Switch(config) # ip host 172.20.128.2 255.255.255.0
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Specify an existing VLAN.

· invalid host address.

Cause: An invalid IP address was specified.

Action: Specify a valid address.

ip address is necessary for ip default-gateway.

Cause: Restoring the IP address to the default value was attempted while ip default-

gateway was set.

Action: Restore the IP address to default after restoring the ip default-gateway to default.

· ip default-gateway inconsistent with network.

Cause: The ip default-gateway setting is inconsistent with the network setting.

8-44 C122-E003-02EN

Action: Specify the consistent ip default-gateway setting.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the consistent ip default-gateway setting.

8.2.6.2 ip default-gateway

This command specifies the IP address of the default gateway. Before the command is executed, the IP address of the host must be specified with the ip host command.

If bootp/dhcp is selected in the ip host command, the setting with this command does not become effective.

(1) Synopsis

Specifies the IP address of the default gateway

```
ip default-gateway <ip-address>
```

Resets the default-gateway setting to the default value

```
no ip default-gateway
```

(2) Options

• <ip-address>: Specifies the IP address of the default gateway.

(3) Command mode

Global

(4) See also

None

(5) Examples

Sets the default gateway of the device to 10.10.10.10

```
Switch# configure
Switch(config)# ip default-gateway 10.10.10.10
Switch(config)#
```

Resets the default-gateway setting of the device to the default value

```
Switch# configure
Switch(config)# no ip default-gateway
Switch(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

invalid gateway address.

Cause: An invalid address was specified for the gateway address.

Action: Specify a valid gateway address.

ip address is necessary for ip default-gateway.

Cause: Specification of the default gateway was attempted while the IP address was not specified for ip host.

Action: Specify the default gateway after specifying the IP address.

8.2.6.3 hostname

This command sets the device name.

(1) Synopsis

Specifies a device name

```
hostname <hostname>
```

8-46 C122-E003-02EN

· Resets a device name to the default value

```
no hostname
```

(2) Options

• <hostname>: Specifies a host name (up to 63 alphanumeric characters including the hyphen (-), underscore (_), slash (/), #, and *). However, the first character cannot be a special symbol (hyphen (-), underscore (_), slash (/), #, or *). The default device name is "switch". The following special symbols cannot be specified: (!"\$%&'()=~^|\ `@[{;+:}],<>?).

(3) Command mode

Global

(4) See also

None

(5) Examples

```
Switch(config)# hostname gswb
gswb(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid string was specified for the host name. Alternatively, a string

exceeding 63 characters was specified for the host name.

Action: Specify a valid string for the host name.

8.2.7 MAC bridge functions

8.2.7.1 mac address-table aging-time

This command sets the aging time.

(1) Synopsis

 Sets the amount of time that the MAC address table retains a dynamic entry after the entry is used or updated

```
mac address-table aging-time <seconds>
```

· Resets the aging timer setting to the default value

```
no mac address-table aging-time
```

(2) Options

• <seconds>: Specifies the aging time (s).

The setting range for the aging time is 0 and from 10 to 1000000. The default aging time is 300. If 0 is specified, MAC addresses that have been learned are not deleted because no aging processing is performed.

(3) Command mode

Global

(4) See also

show bridge

clear bridge

(5) Examples

· Sets the aging time to 100 s

8-48 C122-E003-02EN

```
Switch(config) # mac address-table aging-time 100
Switch(config) #
```

· Disables aging

```
Switch(config)# mac address-table aging-time 0
Switch(config)#
```

Resets the aging time to the default value

```
Switch(config) # no mac address-table aging-time Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.7.2 mac address-table static

This command adds and deletes MAC address table static addresses:

• MAC addresses registered statically cannot be deleted using "clear bridge." They can be deleted using "no mac address-table static."

- Up to 128 definitions can be registered. However, if the MAC address table has no free space because of dynamic learning, defining the maximum number (128) of static addresses may not be possible.
- No MAC address can be set for a broadcast address or multicast address, and no ALL 0 MAC address or ALL F MAC address can be specified.
- Static MAC address entries have priority over dynamic ones.
- If the specified port-channel does not exist, no error occurs, but it is invalid. Each item is enabled when it is created

(1) Synopsis

Adds a static address to the MAC address table

```
mac address-table static <mac-address> vlan <vlan-id>
{forward interface <interface-id> | discard}
```

Deletes a static address from the MAC address table

```
no mac address-table static <mac-address> vlan <vlan-id>
```

(2) Options

<mac-address>

Station MAC address. A MAC address for a broadcast address or multicast address, an ALL 0 MAC address, and an ALL F MAC address cannot be registered.

- <vlan-id>: Specifies the VLAN ID (1 to 4094) of the output port.
- {forward | discard}
 - forward: Transfers frames to their destinations.
 - discard: Discards frames of the specified destination.
- <interface-id>: Specifies the output port number.
 - GigabitEthernet 0/1 to 0/8
 - IOU 00 to 71
 - TenGigabitEthernet 1/1 to 1/2
 - port-channels 1 to 7
 - ports 1 to 33

(3) Command mode

Global

8-50 C122-E003-02EN

(4) See also

mac address-table aging-time show bridge clear bridge

(5) Examples

Adds the static address 00:00:00:11:11:11 to the MAC address table

```
Switch(config) # mac address-table static 00:00:00:11:11:11 vlan 1
forward interface GigabitEthernet 0/1
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input bridgemac error.

Cause: An invalid MAC address was specified.

Action: Specify a valid MAC address.

Input parameter duplicate error.

Cause: Registering an already set MAC address or VLAN was attempted.

Action: Check the entries already registered.

Set count over.

Cause: Registering more than 128 entries was attempted.

Action: Check the entries already registered.

% Not implement daughter card.

Cause: 10GigabitEthernet was specified for the port while no TenGigaEthernet

daughter card was implemented.

Action: Check the device configuration.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

Entry isn't existed.

Cause: The specified entry is not registered.

Action: Check the entered MAC address entry.

· mac address table is full.

Cause: The MAC address table is full.

Action: Wait until the MAC address table has a free space and then enter the

command again.

Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8 Spanning tree protocol (STP) functions

8.2.8.1 spanning-tree

This command enables or disables STP for the whole device.

If BPDU frame transfer is enabled by the spanning-tree bpdufilter command, this command cannot enable STP. To enable STP, disable BPDU frame transfer.

(1) Synopsis

Enables STP for the whole device (default)

spanning-tree

Disables STP for the whole device

8-52 C122-E003-02EN

no spanning-tree

(2) Options

None

(3) Command mode

Global

(4) See also

```
spanning-tree priority
spanning-tree max-age
spanning-tree hello-time
spanning-tree forward-time
spanning-tree bpdufilter
```

(5) Examples

· Disables STP for the whole device

```
Switch(config) # no spanning-tree
Switch(config) #
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Specify bpdufilter invalid.

Cause: Enabling STP was attempted while BPDU frame forwarding was enabled.

Action: Enable STP after disabling BPDU frame forwarding.

8.2.8.2 spanning-tree priority

This command sets the bridge priority. Specify the command to manipulate the spanning tree topology as intended.

The command defines bridge identifiers with which the device identifies local devices in a spanning tree configuration of switches in a network.

The bridge priority is specified in the high-order two bytes of the bridge identifier. This value is used to manipulate the spanning tree and configure the intended topology.

The root bridge and designated bridge are determined according to the bridge priority, and this sets the structure of the spanning tree. The lower the priority value, the higher the priority. Therefore, specify the minimum value in all bridges in the tree for the root bridge.

(1) Synopsis

· Sets the bridge priority

```
spanning-tree priority <priority>
```

· Resets the bridge priority to the default value

```
no spanning-tree priority
```

(2) Options

oriority>

Specifies the bridge priority. The lower the priority value, the higher the priority. The setting range is 0 to 65535, and the default value is 32768.

(3) Command mode

Global

(4) See also

spanning tree

(5) Examples

Sets the spanning tree priority to 8192

8-54 C122-E003-02EN

```
Switch(config) # spanning-tree priority 8192
Switch(config) #
```

(6) Error messages

% Incomplete command.

Cause:Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8.3 spanning-tree max-age

This command sets the maximum aging time.

The reception timeout time of Hello messages (root configuration information in STP) is specified in seconds. Reception of periodic Hello messages stops after the specified time has elapsed. Recalculation for the spanning tree begins when this time has elapsed.

Because different kinds of delays occur before a message reaches the end of the tree from the root bridge (generally 2 s/segment), IEEE802.1D recommends setting a vicinity of 20 s.

(1) Synopsis

Sets the maximum aging time

```
spanning-tree max-age <seconds>
```

· Resets the maximum aging time to the default value

```
no spanning-tree max-age
```

(2) Options

<seconds>

Specifies the maximum aging time (s). The setting range is 6 to 40, and the default value is 20.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

Sets the valid time of the spanning tree to 30 s for all instances

```
Switch(config)# spanning-tree max-age 30
Switch(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

8-56 C122-E003-02EN

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8.4 spanning-tree hello-time

This command sets the transmission interval of Hello messages.

Note: The Hello time is the time interval at which Hello messages (root configuration information in STP) are sent by the root bridge.

(1) Synopsis

· Specifies the transmission interval of Hello messages

```
spanning-tree hello-time <seconds>
```

Resets the transmission interval of Hello messages to the default value

```
no spanning-tree hello-time
```

(2) Options

<seconds>

Specifies the Hello time (s). The setting range is 1 to 10, and the default value is 2.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

Sets the Hello time of the spanning tree to 1 s for all instances

```
Switch(config)# spanning-tree hello-time 1
Switch(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8.5 spanning-tree forward-time

This command specifies the value of the transfer delay timer.

Note: The transfer delay timer (time) is the time interval required for a transition to a state, such as the listening state (Listening) > learning state (Learning) > forwarding state (Forwarding).

(1) Synopsis

Sets the transfer delay timer

```
spanning-tree forward-time <seconds>
```

Resets the transfer delay timer setting to the default value

```
no spanning-tree forward-time
```

8-58 C122-E003-02EN

(2) Options

<seconds>

Specifies the time of the transfer delay timer (s). The setting range is 4 to 30, and the default value is 15.

(3) Command mode

Global

(4) See also

spanning-tree

(5) Examples

· Sets the transfer time of the spanning tree to 18 s for all instances

```
Switch(config) # spanning-tree forward-time 18
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8.6 spanning-tree port-priority

This command sets the port priority. The lower the priority value, the higher the priority. If the root path cost is the same for multiple bridges on the same branch line, the port with the lowest value becomes the designated port for relays on the branch line.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected.

The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

Sets the port priority

```
spanning-tree port-priority <priority>
```

Resets the port priority to the default value

```
no spanning-tree port-priority
```

(2) Options

oriority>

Specifies the port priority. The setting range is 0 to 255, and the default value is 128.

(3) Command mode

Interface

(4) See also

spanning-tree cost

(5) Examples

 Increases the priority for GigabitEthernet 0/2 so that the forwarding state is entered in the event that a loop forms

8-60 C122-E003-02EN

```
Switch(config)# interface GigabitEthernet 0/2
Switch(config-if)# spanning-tree port-priority 0
Switch(config-if)#
```

Sets the port priority for the port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# spanning-tree port-priority 10
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.8.7 spanning-tree cost

This command specifies interface path costs. In the initial state, the path costs are automatically calculated based on data rates. The path costs are automatically recalculated for any change to the data rates.

For each port, each bridge calculates the total (root path cost) from the designated costs of received Hello messages and the costs for the specified number of ports. Then, the port with the lowest total is selected as the root port.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

The calculated value of the Master's link speed - 1 is set in the settings for a portchannel port configured with multiple links.

(1) Synopsis

 Calculates path costs based on data rates automatically by default (automatically recalculates path costs following any change in data rates)

```
spanning-tree cost {<cost> | auto}
```

Resets the path cost setting to the default value

```
no spanning-tree cost
```

(2) Options

• <cost>

Specifies the path cost value. The setting range is 0 to 65535.

• auto (default)

Automatically sets the path cost value.

The following table lists the default path costs when [Auto] is specified.

Data rate	Default path cost
10Mbps	100
100Mbps	19
1000Mbps	4
10Gbps	2

(3) Command mode

Interface

(4) See also

spanning-tree

spanning-tree port-priority

(5) Examples

Sets 250 as the path cost for an interface

8-62 C122-E003-02EN

```
Switch(config) # interface GigabitEthernet 0/4
Switch(config-if) # spanning-tree cost 250
Switch(config-if) #
```

Sets 500 as the path cost for a port-channel port interface

```
Switch(config)# interface port-channel 1
Switch(config-if)# spanning-tree cost 500
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.8.8 spanning-tree bpdufilter

This command defines the BPDU filter. Enabling the BPDU filter on a specific interface is equivalent to disabling the spanning tree on the interface, and a spanning tree loop may be formed as a result. The spanning tree must be disabled before the BPDU filter is enabled.

(1) Synopsis

Specifies whether to transfer BPDU frames when STP is disabled

```
spanning-tree bpdufilter {disable | enable}
```

· Resets the BPDU filter setting to the default value

```
no spanning-tree bpdufilter
```

(2) Options

- {disable | enable}
 - enable: Enables the BPDU filter (BPDU frames are transferred)
 - disable (default): Disables the BPDU filter (BPDU frames are discarded)

(3) Command mode

Global configuration

(4) See also

spanning-tree

(5) Examples

· Enables the BPDU filter function

```
Switch(config) # spanning-tree bpdufilter enable Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

8-64 C122-E003-02EN

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.8.9 spanning-tree

This command enables or disables the spanning tree protocol on the specified interface. The settings are reflected in the device only if STP (8.2.8.1) is enabled for the whole device.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

• Enables the spanning tree protocol for the specified interface when STP is enabled for the whole device (default: Enable)

```
spanning-tree
```

Disables the spanning tree protocol for the specified interface

```
no spanning-tree
```

(2) Options

None

(3) Command mode

Interface configuration

(4) See also

spanning-tree (Global)

(5) Examples

Disables the STP function on a port

```
Switch(config) # interface GigabitEthernet 0/1
Switch(config-if) # no spanning-tree
Switch(config-if) #
```

Enables the STP function on a port-channel port

```
Switch(config) # interface port-channel 1
Switch(config-if) # spanning-tree
Switch(config-if) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-66 C122-E003-02EN

8.2.9 Virtual LAN (VLAN) functions

8.2.9.1 vlan

This command creates and deletes VLANs:

- VLAN IDs 0 and 4095 cannot be specified because they are reserved IDs.
- VLAN ID 1 cannot be specified because it is set for the default VLAN (and it cannot be deleted either).
- The VLAN name is optional (generated automatically).
- A VLAN name of a created VLAN cannot be deleted by specifying the corresponding VLAN ID. To change the VLAN name, delete the VLAN and then create the VLAN again with the VLAN name specified.

(1) Synopsis

Creates a VLAN and enters the VLAN configuration mode.
 If the specified VLAN ID is an existing ID, VLAN configuration mode is entered.

```
vlan <vlan-id> [name <vlan-name>]
```

· Deletes a VLAN

```
no vlan <vlan-id>
```

(2) Options

- <vlan-id>: ID of VLAN to be created (2 to 4094)
- <vlan-name>: VLAN name (up to 32 en-size alphanumeric characters)

(3) Command mode

Global

(4) See also

show vlan

(5) Examples

· Creates a VLAN

```
Switch(config) # vlan 20
Switch(config-vlan) #
```

Deletes a VLAN

```
Switch(config) # no vlan 20
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: The parameter entered for the command is invalid.

Action: Check the parameter entered for the command.

· Entry isn't existed.

Cause: The specified entry is not registered.

Action: Check the specified entry.

8-68 C122-E003-02EN

8.2.9.2 switchport access vlan

This command specifies an interface for a VLAN.

To make the command available, the port must be in access mode. Only one VLAN can be allocated to the access port.

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

Designates an interface as a static access port (port VLAN port)

```
switchport access vlan <vlan-id>
```

Designates an interface as part of the default VLAN in the device

```
no switchport access vlan
```

(2) Options

• <vlan-id>: ID of the port VLAN to which the interface belongs (1 to 4094)

(3) Command mode

Interface

(4) See also

switchport mode

vlan

(5) Examples

Allocates a port in access mode to VLAN2

```
Switch(config-if)# switchport access vlan 2
Switch(config-if)#
```

Allocates a port-channel port to VLAN10

```
Switch(config)# interface port channel 1
Switch(config-if)# switchport access vlan 10
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Reenter the command after creating a VLAN.

Invalid switchport mode.

Cause: The VLAN membership mode is not access.

Action: Reenter the command after changing the mode to access.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

8-70 C122-E003-02EN

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.9.3 switchport mode

This command is used to select the VLAN membership mode of an interface.

The available VLAN commands vary depending on the selected mode. No specific error message is displayed, however, after execution of a mode-dependent command that cannot be executed.

- Commands that can be executed in Access mode switchport access vlan
- Commands that can be executed in Trunk mode switchport allowed vlan switchport native vlan

When making this setting for a port-channel port, no setting is required for a physical link that is part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

Sets the selected VLAN membership mode for an interface

```
switchport mode {access | trunk}
```

Resets the VLAN membership mode to the initial setting (access)

```
no switchport mode
```

(2) Options

- {access | trunk}
 - access: Makes the interface function as a port VLAN (default).
 - trunk: Sets up a VLAN trunk (tagged VLAN).

(3) Command mode

Interface

(4) See also

switchport access vlan switchport allowed vlan switchport native vlan

(5) Examples

· Sets Access mode for a port

```
Switch(config-if)# switchport mode access
Switch(config-if)#
```

Sets Trunk mode for a port

```
Switch(config-if) # switchport mode trunk
Switch(config-if) #
```

· Sets Trunk mode for a port-channel port

```
Switch(config) # interface port-channel 1
Switch(config-if) # switchport mode trunk
Switch(config-if) #
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-72 C122-E003-02EN

· vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Reenter the command after creating a VLAN.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

8.2.9.4 switchport allowed vlan

This command specifies trunk properties:

- The VLANs that can be used in Trunk mode are determined by this command and the switchport native vlan command.
- Trunk mode must be set before this command is executed.
- A single VLAN or a range of consecutive VLANs is specified in a setting.
- The default setting is [add 1].
- Since each interface must be a part of at least one VLAN, all VLANs cannot be deleted by using "remove."
- Before the default VLAN 1 is deleted, another VLAN must be added.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

 Specifies interface properties for operation of an interface in Trunk mode (tagged VLAN mode)

```
switchport allowed vlan <vlan-list>
```

Specifies trunk properties for a member of the default VLAN

```
no switchport allowed vlan
```

(2) Options

• <vlan-list>

Specifies the VLAN ID of the VLAN that transmits/receives traffic in the VLAN tag format on an interface.

The format of <vlan-list> is {{add | remove} <vlan-atom>}

- all: Specifies all VLANs (default).
- add: Adds the VLAN specified in <vlan-atom>.
- remove: Deletes VLAN specified in <vlan-atom>.
- <vlan-atom>:

Specifies, using a hyphen, the VLAN IDs of a range of consecutive VLANs.

No space before or after the hyphen is allowed.

Any leading 0 is not permitted.

Example:

Single VLAN 101

List of non-consecutive VLANs 10,12,14,16,18

Consecutive VLAN range 10-15

List of consecutive VLAN ranges 10-15,20-24

List of non-consecutive VLANs and a consecutive VLAN range8,11,20-24,44

(3) Command mode

Interface

(4) See also

vlan

switchport mode

switchport native vlan

8-74 C122-E003-02EN

(5) Examples

Adds VLAN2, 5, and 6 to the permission list

```
Switch(config-if)# switchport allowed vlan add 2
Switch(config-if)# switchport allowed vlan add 5-6
Switch(config-if)#
```

Deletes VLAN2 from the permission list of a port-channel port

```
Switch(config)# interface port-channel 1
Switch(config-if)# switchport allowed vlan remove 2
Switch(config-if)#
```

 Registers VLAN 10, 20, and 30, which specify the Trunk mode for port1, as allowed VLANs

```
Switch(config) # vlan 10 name aaa
Switch(config-vlan) #exit
Switch(config) # vlan 20 name bbb
Switch(config-vlan) #exit
Switch(config) # vlan 30 name ccc
Switch(config-vlan) #exit
Switch(config-vlan) #exit
Switch(config-if) # switchport mode trunk
Switch(config-if) # switchport allowed vlan add 10
Switch(config-if) # switchport allowed vlan add 20
Switch(config-if) # switchport allowed vlan add 30
Switch(config-if) # switchport native vlan 1
Switch(config-if) #
```

(6) Error messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Reenter the command after creating a VLAN.

· Input parameter error.

Cause: The VLAN specification is invalid.

Action: Review the VLAN specification.

· Invalid switchport mode.

Cause: The VLAN membership mode is not access.

Action: Reenter the command after changing the mode to access.

· It is necessary to review specified VLAN and port.

Cause: The VLAN and port definition do not match.

Action: Review the VLAN and port definitions.

8.2.9.5 switchport native vlan

This command specifies a VLAN to be allocated to traffic without tags:

- The VLANs that can be used in Trunk mode are determined by this command and the switchport allowed vlan command.
- Trunk mode must be set before this command is executed. If the command is executed in Access mode, no error message is displayed and no setting is made.
- The default setting is "switchport native vlan 1".
- Tagged frames of the VLAN specified by this command are also received. However, VLAN frames specified by the command are sent without tags.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

8-76 C122-E003-02EN

(1) Synopsis

 Specifies the VLAN ID for receiving traffic without tags for operation of an interface in VLAN Trunk mode

```
switchport native vlan <vlan-id>
```

Resets this setting for a member of the native vlan to the default value

```
no switchport native vlan
```

(2) Options

• <vlan-id>

Specifies the native vlan id of the VLAN to be allocated to traffic without tags when the interface is in 802.1Q VLAN Trunk mode.

(3) Command mode

Interface

(4) See also

switchport mode switchport allowed vlan

(5) Examples

Sets the native vlan id of a port in Trunk mode to VLAN3

```
Switch(config-if) # switchport native vlan 3
Switch(config-if) #
```

Resets the native vlan id of a port-channel port to the default value

```
Switch(config)# interface port-channel 1
Switch(config-if)# no switchport native vlan
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· vlan id doesn't exist.

Cause: The specified VLAN does not exist.

Action: Reenter the command after creating a VLAN.

· Invalid switchport mode.

Cause: The VLAN membership mode is not access.

Action: Reenter the command after changing the mode to access.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

8.2.10 Priority control functions (Class of Service)

8.2.10.1 switchport priority default

This command sets the default priority to frames without tags. The command is not applicable to IEEE802.1Q VLAN tagged frames.

When making this setting for a port-channel port, no setting is required for a physical link that is a part of the target port-channel. The contents of settings made for such links are not reflected. The setting for a physical link in the port-channel is reflected in the physical link at the time the link is removed from the port-channel.

(1) Synopsis

Sets the default priority to frames without tags

switchport priority default <default-priority-id>

8-78 C122-E003-02EN

· Resets the CoS map to the default value

```
no switchport priority default
```

(2) Options

• <default-priority-id>

Priority of frames without tags. The setting range is 0 to 7, and the default value is 0. The highest priority is 7.

(3) Command mode

Interface

(4) See also

wrr-queue cos-map

(5) Examples

Sets the priority to 3

```
Switch(config-if)# switchport priority default 3
Switch(config-if)#
```

Sets priority 1 for a port-channel port

```
Switch(config) # interface port-channel 1
Switch(config-if) # switchport priority default 1
Switch(config-if) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.10.2 wrr-queue cos-map

This command specifies the correspondence between user priorities and the CoS Queue.

The CoS allocated to the input port is used for CoS priority selection in the output port.

(1) Synopsis

· Maps the correspondence between user priorities and the CoS Queue

· Resets the CoS map to the default value

(2) Options

Specifies the transmit CoS Queue corresponding to the user priority (0 to 7). The setting range for the transmit CoS Queue is 0 to 3. Multiple user priorities are delimited by the space character. The default setting is "1 0 0 1 2 2 3 3".

(3) Command mode

Global

(4) See also

switchport priority default show wrr-queue cos-map

8-80 C122-E003-02EN

(5) Examples

 Maps user priorities 0, 1, and 2 to CoS priority queue 0, user priority 3 to CoS priority queue 1, user priorities 4 and 5 to CoS priority queue 2, and user priorities 6 and 7 to CoS priority queue 3

```
Switch(config) # wrr-queue cos-map 0 0 0 1 2 2 3 3 Switch(config) #
```

Maps user priorities 0, 1, 2, and 3 to CoS priority queue 2 and user priorities 4, 5,
 6, and 7 to CoS priority queue 3

```
Switch(config) # wrr-queue cos-map 2 2 2 2 3 3 3 3 Switch(config) #
```

Sets the CoS value to the default value

```
Switch(config) # no wrr-queue cos-map
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.11 Port trunking functions

8.2.11.1 interface port-channel

This command creates and deletes channel groups.

(1) Synopsis

· Creates or accesses a channel group

```
interface port-channel <channel-group-number>
```

· Deletes a channel group

```
no interface port-channel <channel-group-number>
```

(2) Options

<channel-group-number>

Specifies the channel number of a channel group. The setting range is 1 to 7.

(3) Command mode

Global

(4) See also

```
channel-group
spanning-tree port-priority
spanning-tree cost
switchport access vlan
switchport mode
switchport allowed vlan
switchport native vlan
switchport priority default
```

8-82 C122-E003-02EN

(5) Examples

Creates a channel group with channel number 5 specified

```
Switch(config) # interface port-channel 5
Switch(config-if) #
```

· Deletes the channel group whose channel number is 5

```
Switch(config) # no interface port-channel 5
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.11.2 channel-group

This command adds and deletes physical links for a channel group:

- The maximum number of ports that can be registered in a channel group is 8.
- Different types of interfaces cannot be registered in the same channel group.
- Registered channel groups cannot be changed. To change a channel group, delete the channel group definition, and create a new channel group.
- The port registered first in a channel group becomes the master port, which inherits communication attributes and settings (Speed, duplex, storm-control, and flowcontrol; but only flowcontrol for TenGigabitEthernet). The master port must have the lowest port number among the registered ports in the group.

• The master port must always be the last port deleted among the registered ports in the group.

(1) Synopsis

Adds a physical link to a channel group

```
channel-group <channel-group-number>
```

Deletes a channel group definition (default)

```
no channel-group
```

(2) Options

<channel-group-number>

Specifies the channel number of a channel group. The setting range is 1 to 7.

(3) Command mode

Interface

(4) See also

interface port-channel

(5) Examples

Adds physical links to channel group 1

```
Switch(config) # interface GigabitEthernet 0/1
Switch(config-if) # channel-group 1
Switch(config-if) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-84 C122-E003-02EN

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

· port-channel is not define.

Cause: A non-existent channel group was specified.

Action: Reenter the command after creating a channel group.

· Already registered channel-group.

Cause: The interface is already registered with the channel group.

Action: To register the interface to another channel group, delete it from the current group and register it with the new group.

Except for master port still remain.

Cause: A port other than the master port is registered with the channel group. The master port must be the last port deleted.

Action: Delete the port after deleting all the other ports.

Smaller than master port.

Cause: Registering a port number smaller than that of the master port was attempted.

Action: Specify a port number larger than that of the master port.

· Set count over.

Cause: Registering more than 8 entries was attempted.

Action: Check the entries already registered.

Port type error.

Cause: The port type is wrong.

Action: Reenter the command after checking the port type.

Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.11.3 port-channel load-balance

This command specifies the method of load balancing among physical links in a channel group.

The command can be used only for the "port-channel" interface type.

(1) Synopsis

Specifies the method for load balancing among the physical links in a trunk group

```
port-channel load-balance {src-mac | dst-mac | src-dst-mac |
src-ip | dst-ip | src-dst-ip}
```

Resets the load balancing method to the default value

```
no port-channel load-balance
```

(2) Options

• {src-mac | dst-mac | src-dst-mac | src-ip | dst-ip | src-dst-ip}

Specifies the load balancing method.

- src-mac: Uses hash for the source MAC address.
- dst-mac: Uses hash for the destination MAC address.
- src-dst-mac (default): Uses hash for the source/destination MAC addresses.
- src-ip: Uses hash for the source IP address.
- dst-ip: Uses hash for the destination IP address.
- src-dst-ip: Uses hash for the source/destination IP addresses

(3) Command mode

Interface

(4) See also

channel-group

8-86 C122-E003-02EN

(5) Examples

 Specifies "hash for the destination MAC address" as the load balancing method of channel group 1

```
Switch(config)# interface port-channel 1
Switch(config-if)# port-channel load-balance dst-mac
Switch(config-if)#
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.12 IGMP snooping functions

8.2.12.1 ip igmp snooping

This command enables or disables IGMP snooping for the whole device.

If IGMP snooping is disabled for the whole device, IGMP snooping is disabled in all existing VLAN interfaces.

(1) Synopsis

· Enables IGMP snooping

```
ip igmp snooping
```

Disables IGMP snooping (default)

```
no ip igmp snooping
```

(2) Options

None

(3) Command mode

Global

(4) See also

ip igmp snooping vlan

(5) Examples

· Enables IGMP snooping

```
Switch(config)# ip igmp snooping
Switch(config)#
```

· Disables IGMP snooping

```
Switch(config) # no ip igmp snooping
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-88 C122-E003-02EN

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again,

collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

· igmp static exists.

Cause: The ip igmp snooping vlan static setting is enabled.

Action: Disable the ip igmp snooping vlan static setting, and reexecute the command.

8.2.12.2 ip igmp snooping vlan

This command enables IGMP snooping in a specific VLAN.

For snooping in the specified VLAN, not only must the ip igmp snooping vlan command enable snooping in the specified VLAN, but snooping must also be enabled by the ip igmp snooping command for the whole device.

Snooping can be enabled in up to 110 VLANs.

(1) Synopsis

Enables IGMP snooping in a specific VLAN

```
ip igmp snooping vlan
```

Disables IGMP snooping in a specific VLAN (default)

```
no ip igmp snooping vlan
```

(2) Options

None

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snooping

(5) Examples

Enables IGMP snooping in VLAN 2

```
switch(config) #vlan 2
switch(config-vlan) # ip igmp snooping vlan
switch(config-vlan) #
```

Disables IGMP snooping in VLAN 2

```
switch(config) #vlan 2
switch(config-vlan) # no ip igmp snooping vlan
switch(config-vlan) #
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

igmp vlan is max regist.

Cause: 110 VLANs are specified for snooping.

Action: Disable unnecessary IGMP VLANs.

Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8-90 C122-E003-02EN

igmp static exists.

Cause: The ip igmp snooping vlan static setting is enabled.

Action: Disable the ip igmp snooping vlan static setting, and reexecute the command.

8.2.12.3 ip igmp snooping vlan mrouter

This command specifies a multicast router port.

If a channel group is specified in <interface-id>, the anchor port is set as the multicast router port.

(1) Synopsis

· Specifies a multicast router port

```
ip igmp snooping vlan mrouter interface <interface-id>
```

· Deletes a multicast router port

```
no ip igmp snooping vlan mrouter interface <interface-id>
```

(2) Options

• <interface-id>

Specifies the interface and port number (GigabitEthernet 0/1 to 0/8, IO_Units 00 to 71, TenGigabitEthernet 1/1 to 1/2, port-channels 1 to 7, ports 1 to 33) to be set for the router port.

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snoopingp igmp snooping vlan

(5) Examples

Specifies an interface as a multicast router port of a VLAN

```
Switch(config-vlan) # ip igmp snooping vlan mrouter interface GigabitEthernet 0/1 Switch(config-vlan) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

igmp vlan is invalid.

Cause: IGMP snooping for the specified VLAN is not enabled.

Action: Reenter the command after enabling IGMP snooping for the specified VLAN

Input parameter duplicate error.

Cause: Duplicated registration was attempted.

Action: Check the entries already registered.

% Not implement daughter card.

Cause: TenGigabitEthernet was specified for the unit where no TenGigabitEthernet

daughter card was implemented.

Action: Check the device configuration.

Entry isn't existed.

Cause: The specified entry is not registered.

Action: Check the entered entry.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

8-92 C122-E003-02EN

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.12.4 ip igmp snooping vlan static

This command adds a layer-2 port to a multicast group:

- If a channel group is specified in <interface-id>, the anchor port is added to the multicast group.
- The maximum number of registered multicast groups, which consist of dynamically registered groups and groups registered statically by commands, is 252.
- If the MAC address table has no free space, no multicast group can be registered.

(1) Synopsis

· Adds a layer-2 port to a multicast group

```
ip igmp snooping vlan static <mac-address> interface <interface-id>
```

Deletes a layer-2 port from a multicast group

```
no ip igmp snooping vlan static <mac-address> interface <interface-id>
```

(2) Options

<mac-address>

Specifies a static group MAC address.

• <interface-id>

Specifies the interface and port number (GigabitEthernet 0/1 to 0/8, IO_Units 00 to 71, TenGigabitEthernet 1/1 to 1/2, port-channels 1 to 7, and ports 1 to 33) of the port to be added to a multicast group.

(3) Command mode

VLAN configuration mode

(4) See also

ip igmp snooping

(5) Examples

 Sets GigabitEthernet 0/1 statically for a multicast group (01:00:5e:02:02:03) of VLAN 20

```
Switch(config) # vlan 20
Switch(config-vlan) # ip igmp snooping vlan static 01:00:5e:02:02:03 interface
GigabitEthernet 0/1
Switch(config-vlan) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter duplicate error.

Cause: Duplicated registration was attempted.

Action: Check the entries already registered.

% Not implement daughter card.

Cause: TenGigabitEthernet was specified for the unit where TenGigabitEthernet was not implemented.

Action: Check the device configuration.

igmp static mac address max regist.

Cause: Specification exceeding the multicast table limit was attempted.

Action: Check the number of registered entries.

8-94 C122-E003-02EN

· Input static mac error.

Cause: The specified MAC address is an invalid multicast group.

Action: Check the MAC address.

· igmp vlan is invalid.

Cause: IGMP snooping for the specified VLAN is not enabled.

Action: Reenter the command after enabling IGMP snooping for the specified VLAN.

· Entry isn't existed.

Cause: The specified entry is not registered.

Action: Check the entered MAC address entry.

It is necessary to review specified VLAN and port.

Cause: The VLAN and port definitions do not match.

Action: Review the VLAN and port definitions.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

· igmp is disable.

Cause: IGMP snooping is disabled.

Action: Enable IGMP snooping, and then reexecute the command.

· mac address table is full.

Cause: The MAC learning table is full.

Action: Wait until the MAC learning table contains free space, and then reexecute the

command.

8.2.13 Port mirroring functions

8.2.13.1 monitor session source

This command specifies the monitored ports. However, no setting can be made for a port-channel.

A change only to the defined traffic direction is not possible. A reset is required after an entry is deleted. Any interface specified by the monitor session destination command cannot be registered.

The show monitor session source command can be used to check registered entries. If no entry is registered, nothing is displayed.

By default, no entry is registered.

(1) Synopsis

· Specifies a monitored port

```
monitor session source interface <interface-id> [rx | tx | both]
```

Removes a monitored port from port monitoring

```
no monitor session source interface <interface-id>
```

(2) Options

• <interface-id>

Specifies the source interface (GigabitEthernet 0/1 to 0/8, IO_Units 00 to 71, 10GigabitEthernet 1/1 to 1/2, ports 1 to 26).

• rx | tx | both (optional)

Specifies the traffic direction. The default setting is [both].

- rx: Incoming

- tx: Outgoing

- both: Bidirectional

(3) Command mode

Global

8-96 C122-E003-02EN

(4) See also

monitor session destination

(5) Examples

Sets GigabitEthernet 0/1 as a monitored port

```
Switch(config) # monitor session source interface GigabitEthernet 0/1 both
Switch(config) #
```

Deletes GigabitEthernet 0/1 from the monitored ports

```
Switch(config) # no monitor session source interface GigabitEthernet 0/1
Switch(config) #
```

· Uses the show command to check settings

```
Switch(config) # show monitor session source
Switch(config) #
Switch(config) # monitor session source interface GigabitEthernet 0/1 both
Switch(config) # monitor session source interface GigabitEthernet 0/2 rx
Switch(config) # monitor session source interface GigabitEthernet 0/3 tx
Switch(config) # show monitor session source
monitor session source interface GigabitEthernet 0/1 both
monitor session source interface GigabitEthernet 0/2 rx
monitor session source interface GigabitEthernet 0/3 tx
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· % Not implement daughter card.

Cause: TenGigabitEthernet was specified for the unit where 10GigabitEthernet was

not implemented.

Action: Check the device configuration.

Input parameter duplicate error.

Cause: Duplicated registration was attempted.

Action: Check the entries already registered.

Entry isn't existed.

Cause: Deletion of an entry was attempted but the entry did not exist.

Action: Check the entries already registered.

source/destination can't be registered at same port.

Cause: Registering a port with both [source] and [destination] was attempted.

Action: Check the entries already registered.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.13.2 monitor session destination

This command specifies the mirror port.

Only one port can be set as the mirror port. The port specified by the monitor session destination command cannot be used as a normal port. No setting can be made for a port-channel. Any interface registered by the monitor session source command cannot be registered.

By default, no entry is registered.

(1) Synopsis

Specifies the mirror port

monitor session destination interface <interface-id>

Resets the mirror port setting to the default value

no monitor session destination

8-98 C122-E003-02EN

(2) Options

• <interface-id>

Specifies the destination interface (GigabitEthernet 0/1 to 0/8, IO_Units 00 to 71, TenGigabitEthernet 1/1 to 1/2, ports 1 to 26).

(3) Command mode

Global

(4) See also

monitor session source

(5) Examples

Sets GigabitEthernet 0/1 as the mirror port

```
Switch(config) # monitor destination interface GigabitEthernet 0/1
Switch(config) #
Switch(config) # show monitor destination
monitor destination interface GigabitEthernet 0/1
Switch(config) #
```

Deletes GigabitEthernet 0/1 as the mirror port

```
Switch(config) # no monitor session destination
Switch(config) #
Switch(config) #show monitor session destination
no monitor session destination
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

% Not implement daughter card.

Cause: TenGigabitEthernet was specified for the unit where no TenGigabitEthernet daughter card was implemented.

Action: Check the device configuration.

· source/destination can't be registered at same port.

Cause: Registering a port with both [source] and [destination] was attempted.

Action: Check the entries already registered.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.14 Interface

8.2.14.1 interface

This command is used to specify an interface.

(1) Synopsis

Specifies an interface

interface <interface-id>

(2) Options

• <interface-id>

Specifies the interface for this setting (GigabitEthernet 0/1 to 0/8, IO_Units 00 to 71, TenGigabitEthernet 1/1 to 1/2, ports 1 to 33, port-channels 1 to 7).

8-100 C122-E003-02EN

(3) Command mode

Global

(4) See also

None

(5) Examples

Switches to interface configuration mode of GigabitEthernet 0/1

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.14.2 shutdown

This command disables an interface.

(1) Synopsis

· Disables an interface

shutdown

• Enables an interface (default)

no shutdown

(2) Options

None

(3) Command mode

Interface

(4) See also

None

(5) Examples

• Disables GigabitEthernet 0/1

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# shutdown
Switch(config-if)#
```

8-102 C122-E003-02EN

(6) Error Messages

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.14.3 speed

This command specifies the port speed:

- No setting can be made for IO_Units 00 to 71 and TenGigabitEthernet 1/1 to 1/2.
- No setting can be made for a port-channel.
- The port speed cannot be fixed at 1000 Mbps.
- If auto is specified as the option, the duplex command setting is disabled because Auto Negotiation determines the duplex mode.

(1) Synopsis

· Specifies the port speed

```
speed {10 | 100 | auto}
```

Resets the port speed to the default value (auto)

```
no speed
```

(2) Options

- {10 | 100 | auto}
 - 10: The port operates at 10 Mbps.
 - 100: The port operates at 100 Mbps.
 - auto: The port detects the appropriate setting automatically (default).

(3) Command mode

Interface

(4) See also

None

(5) Examples

Sets the port speed of GigabitEthernet 0/1 to 100 Mbps

```
Switch(config)# interface GigabitEthernet 0/1
Switch(config-if)# speed 100
Switch(config-if)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-104 C122-E003-02EN

8.2.14.4 duplex

This command specifies a duplex mode:

- No setting can be made for IO Units 00 to 71 and TenGigabitEthernet 1/1 to 1/2.
- No setting can be made for a port-channel.
- If [auto] is specified by the speed command, duplex mode setting by this command is disabled because Auto Negotiation determines the duplex mode.
- If the setting is changed to the fixed setting (10/100) by the speed command, the setting by this command is enabled.

(1) Synopsis

· Sets a duplex mode

```
duplex {full | half}
```

· Resets the duplex mode to the default value (full)

```
no duplex
```

(2) Options

- {full | half}
 - full (default): Specifies the full-duplex mode.
 - half: Specifies the half-duplex mode.

(3) Command mode

Interface

(4) See also

None

(5) Examples

Sets GigabitEther0/1 to full-duplex mode.

```
Switch(config) # interface GigabitEthernet 0/1
Switch(config-if) # show speed
100
Switch(config-if) # duplex full
Switch(config-if) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.15 Access restriction functions

8.2.15.1 remote-access

This command specifies the host or network that can have remote connections:

- telnet and ssh are the protocols available to this command for access control.
- Even after connection permission is deleted (by executing the no remote-access command), the telnet/ssh connection established to this device is maintained.
- The maximum number of conditions that can be set is 100.
- No connection is permitted at the time of shipment from the factory. To enable the telnet server function/ssh server function, execute this command to make settings to allow such connections.
- Use [remote-access <ip-address>] to permit access from a specific host.
- Use [remote-access <ip-address> <subnet-mask>] to permit access from a specific network. If no network address is specified in <ip-address>, a connection from the host of a specific network cannot be established.

8-106 C122-E003-02EN

(1) Synopsis

Sets host or network conditions to allow remote connections

```
remote-access {all | telnet | ssh } {all | <ip-address> [<subnet-mask>]}
```

Deletes the host or network conditions that allow remote connections

```
no remote-access {all | telnet | ssh } {all | <ip-address> }
```

(2) Options

• {all | telnet | ssh }

Specifies the protocol.

- all: Specifies both telnet and ssh.
- telnet: Specifies telnet.
- ssh: Specifies ssh.
- {all | <ip-address> [<subnet-mask>]}
 - all: Specifies all IP addresses.
 - <ip-address> [<subnet-mask>]: Specifies the IP address or network address for which remote access is permitted.
 - <subnet-mask>: Specifies the subnet mask.
 If the IP address of a specific host is specified in <ip-address>, the subnet mask need not be specified. However, the subnet mask is required for a specific network.

(3) Command mode

Global

(4) See also

telnet enable

ssh enable

show remote-access

(5) Examples

 Defines conditions to allow a telnet connection from the host whose IP address is 192.168.1.100

```
Switch(config) # remote-access telnet 192.168.1.100
Switch(config) #
```

 Defines conditions to allow a telnet connection from the host whose network address is 192.168.1.0

```
Switch(config) # remote-access telnet 192.168.1.0 255.255.255.0 Switch(config) #
```

Defines conditions to allow all telnet connections

```
Switch(config) # remote-access telnet 0.0.0.0 0.0.0.0 Switch(config) #
```

```
Switch(config) # remote-access telnet all
Switch(config) #
```

 Define conditions to allow all services for the host whose IP address is 192.168.1.100

```
Switch(config) # remote-access all 192.168.1.100
Switch(config) #
```

 Delete conditions to allow a telnet connection from the host whose IP address is 192.168.1.100

```
Switch(config) # no remote-access telnet 192.168.1.100
Switch(config) #
```

Uses the show command to check settings

```
Switch(config) #show remote-access
Switch(config) #remote-access telnet 10.10.10.10
Switch(config) #remote-access telnet 10.10.10.11
Switch(config) #remote-access telnet 10.10.10.12
Switch(config) #show remote-access
remote-access telnet 10.10.10.10
remote-access telnet 10.10.10.11
remote-access telnet 10.10.10.12
Switch(config) #
```

8-108 C122-E003-02EN

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid IP address was specified.

Action: Enter the correct IP address.

Input parameter duplicate error.

Cause: Duplicated registration of the same connection conditions was attempted.

Action: Check the remote connection conditions already registered.

· Set count over.

Cause: Registering 101 or more connection conditions was attempted.

Action: Check the remote connection conditions already registered.

Entry isn't existed.

Cause: Deletion of an unregistered remote connection condition was attempted.

Action: Check the remote connection conditions already registered.

8.2.16 Console

8.2.16.1 line

This command specifies a line for a connection.

(1) Synopsis

· Specifies a line for a connection

```
line vty
```

(2) Options

• vty: Specifies the virtual terminal for remote console access.

(3) Command mode

Global

(4) See also

None

(5) Examples

· Enters line configuration mode

```
Switch(config) # line vty
Switch(config-line) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-110 C122-E003-02EN

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.16.2 exec-timeout

This command sets the timeout time of a remote console (telnet, ssh). The specified time is enabled for the terminals that log in after the command is executed.

(1) Synopsis

Sets the timeout time of remote consoles (telnet, ssh)

```
exec-timeout <seconds>
```

· Resets the timeout time of remote consoles to the default value

```
no exec-timeout
```

(2) Options

seconds

Specifies the timeout time (s).

The setting range is 0 to 900 (s), and the default value is 300 (s). If 0 is specified, no timeout occurs.

(3) Command mode

Line

(4) See also

None

(5) Examples

Sets the timeout time for remote consoles to 600 (s)

```
Switch(config) # line vty
Switch(config-line) # exec-timeout 600
Switch(config-line) #
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid timeout value was specified.

Action: Specify a correct timeout value.

8-112 C122-E003-02EN

8.2.17 SNMP

8.2.17.1 snmp-server engineID local

(1) Synopsis

· Specifies the SNMP engine ID of a local device

```
snmp-server engineID local <engineid-string>
```

· Resets the SNMP engine ID of a local device to the default value

```
no snmp-server engineID local
```

(2) Options

<engineid-string>

A 10-digit to 24-digit hexadecimal string specifies the ID. "0x" at the beginning of the string may be omitted. If "0x" is entered, it is not included in the number of digits.

If the entered string consists of 23 or fewer digits, the engineID value is padded with "0" up to the 24th digit. This item need not be set if SNMP v3 is not used.

(3) Command mode

Global

(4) See also

snmp-server enable traps show snmp-server

(5) Examples

Sets the SNMP engine ID of a local device

```
Switch(config)# snmp-server engineID local 0x1234000000
Switch(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: The specified [engineid-string] is invalid.

Action: Enter a correct value.

8.2.17.2 snmp-server location

This command specifies the installation location of a local device. The default value is "none".

(1) Synopsis

Specifies the installation location of a local device

```
snmp-server location <location>
```

Resets this setting to the default value

```
no snmp-server location
```

(2) Options

<location>:

The string entered for the installation location consists of 1 to 64 en-size alphanumeric characters and symbols, which may include - . and @.

8-114 C122-E003-02EN

(3) Command mode

Global

(4) See also

show snmp-server

(5) Example

· Sets "tower-5F" as the installation location of a local device

```
Switch(config)# snmp-server location tower-5F
Switch(config)#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: The specified [location] is invalid.

Action: Enter a correct value.

8.2.17.3 snmp-server contact

This command specifies the contact address of a local device. The default value is "none".

(1) Synopsis

· Specifies the contact address of a local device

```
snmp-server contact <contact>
```

Resets this setting to the default value

```
no snmp-server contact
```

(2) Options

<contact>:

The string entered for the contact address consists of 1 to 64 en-size alphanumeric characters and symbols, which may include _ - . and @.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Example

Specifies "hoge@hoge.co.jp" as the contact address of a local device

```
Switch(config)# snmp-server contact hoge@hoge.co.jp
Switch(config)#
```

8-116 C122-E003-02EN

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: The specified [contact] is invalid.

Action: Enter a correct value.

8.2.17.4 snmp-server user

This command specifies a user to be connected from the server using SNMP v3. Unless snmp v3 is used, no user need be specified. By default, no user is specified.

- Maximum number of users: 8
- DES is used for encrypting packets.

(1) Synopsis

Specifies a user to be connected from a server using SNMP v3

```
snmp-server user <user> { rw | ro } { noauth | auth {md5 | sha}
  <password> | priv {md5 | sha} <password> <passphrase>}
```

Deletes the specified user

```
no snmp-server user <user>
```

(2) Options

- <user>: Specifies a user name. The entered user name consists of 4 to 16 en-size alphanumeric characters and symbols, which may include and .
- { rw | ro }: Specifies the user privilege.
 - rw: Read/write privilege
 - ro: Read-only privilege
- {noauth | auth ... | priv ... }: Specifies the authentication level.
 - noauth: Authentication and encryption do not use passwords. (However, authentication by user name is performed.)
 - auth: Authentication uses passwords. No encryption is performed.
 - priv: Authentication and encryption use passwords.
- {md5 | sha}: The selected hash function is used for encrypting passwords.
 - md5
 - sha
- password>: Specifies a password used for authentication. The entered password consists of 8 to 16 en-size alphanumeric characters.
- passphrase>: Specifies the keyword for packet encryption. The entered
 passphrase consists of 8 to 16 en-size alphanumeric characters.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Examples

• Specifies that a user be set with the user name "a-sss", authentication level "noauth," and read-write privilege

```
Switch(config) # snmp-server user a-sss rw noauth
Switch(config) #
```

 Specifies that a user be set with the user name "1-sss", authentication level "auth," password encryption "md5," and read-only privilege

```
Switch(config)# snmp-server user 1-sss ro auth md5 zxcvbnmk
Switch(config)#
```

8-118 C122-E003-02EN

 Specifies that a user be set with the user name "b-sss", authentication level "priv," password encryption "sha," and read-only privilege

```
Switch(config) # snmp-server user b-sss ro priv sha asdfasdf iuytrewq Switch(config) #
```

· Uses the show command to check settings

```
Switch(config) # show snmp-server user
Switch(config) #snmp-server user aaaaal ro noauth
Switch(config) #snmp-server user aaaaa2 ro noauth
Switch(config) #snmp-server user aaaaa3 ro noauth
Switch(config) #show snmp-server user
snmp-server user aaaaa1 ro noauth
snmp-server user aaaaa2 ro noauth
snmp-server user aaaaa3 ro noauth
Switch(config) #
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: The specified user name, authentication password, or encryption passphrase

is incorrect.

Action: Specify the correct user name, authentication password, and encryption

passphrase.

· Input parameter duplicate error.

Cause: Duplicated registration of the same user name was attempted.

Action: Check the user names already registered.

· Set count over.

Cause: Registration exceeding the maximum 8 people was attempted.

Action: Check the number of registered entries.

· Entry isn't existed.

Cause: Deleting an unregistered user name was attempted.

Action: Check the user names already registered.

8.2.17.5 snmp-server host

This command specifies the host whose MIB information is to be acquired or manipulated:

- The port number used for accessing MIB information is always 161.
- The maximum number of hosts that can be set is 8.
- Hosts with the same IP address but different SNMP versions can be registered simultaneously.

(1) Synopsis

· Specifies the host whose MIB information is to be acquired/manipulated

```
snmp-server host < host-address > version { 1 | 2c } <community-string> \{ ro \mid rw \}
```

Deletes the specified host

```
no snmp-server host <host-address> version { 1 | 2c }
```

8-120 C122-E003-02EN

(2) Options

<host-address>

Specifies the IP address of the host (target receiver).

Specifies the IP address in the form of XXX.XXX.XXX.XXX.

• version {1 | 2c}

Specifies the SNMP version (1 or 2c).

- 1: Security model with the lowest security
- 2c: Security model with the 2nd lowest security
- <community-string>

Specifies the community string, whose function is similar to a password, to be transmitted in a notification action. The string consists of 1 to 20 en-size alphanumeric characters.

• { ro | rw }

Specifies the privilege for accessing MIB information.

- ro: Sets the access privilege to the MIB tree to Read-only.
- rw: Sets the access privilege to the MIB tree to Read/write.

(3) Command mode

Global

(4) See also

show snmp-server

(5) Examples

 Specifies that the host be set with the host address 192.168.0.120, SNMP version 2c, community name "XXXYYYZZZ", and read-only access privilege

```
Switch(config) # snmp-server host 192.168.0.120 version 2c XXXYYYZZZ ro Switch(config) #
```

Uses the show command to check settings

```
Switch(config) # show snmp-server host
Switch(config) #snmp-server host 10.10.10.10 version 1 aaaaaaaa ro
Switch(config) #snmp-server host 10.10.10.11 version 1 aaaaaaaa ro
Switch(config) #snmp-server host 10.10.10.12 version 1 aaaaaaaa ro
Switch(config) #show snmp-server host
snmp-server host 10.10.10.10 version 1 aaaaaaaa ro
snmp-server host 10.10.10.11 version 1 aaaaaaaa ro
snmp-server host 10.10.10.12 version 1 aaaaaaaa ro
Switch(config) #
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid IP address or community string was specified.

Action: Specify the correct IP address and community string.

Input parameter duplicate error.

Cause: Registering a host already registered was attempted.

Action: Check the hosts already registered.

8-122 C122-E003-02EN

· Set count over.

Cause: Registration exceeding the maximum 8 units was attempted.

Action: Check the number of registered entries.

· Entry isn't existed.

Cause: Deletion of an unregistered host was attempted.

Action: Check the hosts already registered.

8.2.17.6 snmp-server enable traps

This command enables trap transmission to the specified host and specifies the transmission notification type:

- The only port number used for trap transmission is 162.
- Up to eight trap notification destinations can be registered.
- Information transmission (inform) is not supported.
- DES is used for encrypting packets.
- Trap notification destinations with the same IP address but different SNMP versions can be registered simultaneously.

(1) Synopsis

 Enables trap transmission to the specified host and specifies the transmission notification type

```
snmp-server enable traps < host address > { version { 1 <community> |
2c <community> | 3 <user> { noauth | auth {md5 | sha} <password> |
priv {md5 | sha} <password> <passphrase>}
```

Deletes the specified host

```
no snmp-server enable traps < host address > version { 1 | 2c | 3 }
```

(2) Options

- < host address >: Specifies the trap notification destination.
- { version { 1 < community> | 2c < community> | 3 < user > ... }: Specifies the version of traps to be transmitted.
 - version 1 <community>: Transmits SNMP traps of version1.
 <community>: Specifies the community-string used for authentication by the server that receives traps. The entered community string (1 to 20 en-size alphanumeric characters), whose function is similar to a password, is transmitted by a notification action.
 - version 2c <community>: Transmits SNMP traps of version2c.
 <community>: Specifies the community-string used for authentication by the server that receives traps. The entered community string (1 to 20 en-size alphanumeric characters), whose function is similar to a password, is transmitted by a notification action.
 - version 3 <user> { noauth | auth {md5 | sha} <password> | priv {md5 | sha}
 <password> <passphrase>}: Transmits SNMP traps of version3. The authentication level is specified.

<user>: Specifies a user name (4 to 16 en-size alphanumeric characters including - and _).

noauth: Authentication and encryption do not use passwords. (However, authentication by user name is performed.)

auth: Authentication uses passwords. No encryption is performed.

{md5 | sha}: The selected hash function is used for encrypting passwords.

<password>: Specifies the authentication password (8 to 16 en-size
alphanumeric characters).

priv: Authentication and encryption use passwords.

{md5 | sha}: The selected hash function is used for encrypting passwords.

<password>: Specifies the authentication password (8 to 16 en-size
alphanumeric characters).

<passphrase>: Specifies the keyword for packet encryption (8 to 16 en-size
alphanumeric characters).

(3) Command mode

Global

(4) See also

snmp-server engineID local show snmp-server

8-124 C122-E003-02EN

(5) Examples

Sets the snmp version1 trap

```
Switch(config) # snmp-server enable traps 192.168.0.100 version 1 aaasss Switch(config) #
```

Sets the snmp version 2c trap

```
Switch(config) # snmp-server enable traps 192.168.0.110 version 2c cccvvv Switch(config) #
```

· Sets the snmp version 3 trap

```
Switch(config)# snmp-server enable traps 192.168.0.120 version 3 xxxyyy
priv md5 password passphrase
Switch(config)#
```

Uses the show command to check settings

```
Switch(config) #
Switch(config) #show snmp-server enable traps
Switch(config) #snmp-server enable traps 10.10.10.10 version 1 aaaaaa
Switch(config) #snmp-server enable traps 10.10.10.11 version 1 aaaaaa
Switch(config) #snmp-server enable traps 10.10.10.12 version 1 aaaaaa
Switch(config) #show snmp-server enable traps
snmp-server enable traps 10.10.10.10 version 1 aaaaaa
snmp-server enable traps 10.10.10.11 version 1 aaaaaa
snmp-server enable traps 10.10.10.12 version 1 aaaaaa
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid IP address, community string, authentication password, or packet encryption keyword was specified.

Action: Specify valid IP address, community string, authentication password, and packet encryption keyword.

Input parameter duplicate error.

Cause: A trap notification destination server already registered was specified.

Action: Check the trap notification destination servers already registered.

Set count over.

Cause: Registration exceeding the maximum 8 units was attempted.

Action: Check the number of registered entries.

Entry isn't existed.

Cause: Deletion of an unregistered trap notification destination server was attempted.

Action: Check the trap notification destination servers already registered.

8-126 C122-E003-02EN

8.2.18 LDAP

8.2.18.1 Idap server

This command specifies an ldap server:

- The maximum number of servers that can be specified is 2.
- [ldap version] 3 is used.

(1) Synopsis

· Specifies the Idap server

```
ldap server <ip-address>
```

Deletes the specified Idap server

```
no ldap server <ip-address>
```

(2) Options

• <ip-address>: Specifies the IP address of the ldap server.

(3) Command mode

Global

(4) See also

None

(5) Examples

· Sets the Idap server address to 192.168.2.1

```
Switch(config) # ldap server 192.168.2.1
Switch(config) #
```

Uses the show command to check settings

```
Switch(config)#
Switch(config)#ldap server 10.10.10.10
Switch(config)#ldap server 10.10.10.11
Switch(config)#show ldap server
ldap server 10.10.10.10
ldap server 10.10.10.11
Switch(config)#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid IP address was specified.

Action: Enter the correct IP address.

Input parameter duplicate error.

Cause: An LDAP server already registered was specified.

Action: Check the LDAP servers already registered.

· Set count over.

Cause: Registration exceeding the maximum 2 units was attempted.

Action: Check the number of registered entries.

8-128 C122-E003-02EN

· Entry isn't existed.

Cause: Deletion of an unregistered LDAP server was attempted.

Action: Check the LDAP servers already registered.

8.2.18.2 Idap dn

This command specifies the base DN for searches.

The default setting is [dc=].

(1) Synopsis

Specifies the base [DN] for searches

```
ldap dn <dn>
```

· Resets the base [DN] for searches to the default value

```
no ldap dn
```

(2) Options

<dn>: Specifies the base DN in the form of
 "(attribute1)=(value1),(attribute2)=(value2),...". The entered data consists of 3 to
 128 bytes and uses en-size alphanumeric characters and -_, and =. Entering the
 space character causes an error.

Examples:

```
dc=example,dc=com Normal
dc = example,dc = com Error
dc=example, dc=com Error
```

(3) Command mode

Global

(4) See also

show ldap

(5) Examples

· Sets the base DN for searches

```
Switch(config)# ldap dn dc=example,dc=com
Switch(config)#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Input parameter error.

Cause: An invalid value was specified for [dn].

Action: Specify a correct value.

8.2.18.3 Idap ssl

This command enables ldap over ssl.

The hash algorithm is always DES.

(1) Synopsis

· Enables Idap over ssl

```
ldap ssl enable
```

Disables Idap over ssl

```
no ldap ssl enable
```

8-130 C122-E003-02EN

(2) Options

None

(3) Command mode

Global

(4) See also

show ldap

(5) Examples

· Enables Idap over ssl

```
Switch(config) # ldap ssl enable
Switch(config) #
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.19 telnet

8.2.19.1 telnet enable

This command enables or disables telnet. A connection cannot be established from a business LAN by only executing the telnet enable command. Settings must be made with the remote-access command to allow connections.

Note: Only one connection can be established at a time.

(1) Synopsis

· Enables telnet

```
telnet enable
```

· Disables telnet (default)

```
no telnet enable
```

(2) Options

None

(3) Command mode

Global

(4) See also

remote-access

(5) Examples

· Enables telnet

```
Switch(config) # telnet enable
Switch(config) #
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

8-132 C122-E003-02EN

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.20 ssh

8.2.20.1 ssh enable

This command enables the ssh server using the specified protocol:

- SSH connection is disabled by default.
- An operation command must be used to create a key file before SSH is enabled.
- User authentication supports only password authentication (the client side does not have the public key).
- The supported SSH protocol versions are RSA Version1, RSA Version2, and DSA Version2.
- If no parameter is specified in the ssh enable command, all authentication methods of rsa1, rsa, and dsa are enabled.
- If the ssh enable command is executed when no key file has been created, no error occurs, but no connection using ssh can be established. In such cases, create a key file by executing the ssh keygen command.
- If another ssh enable command is executed after a ssh enable command, the settings in the command executed last are used to enable ssh.

 Example: If rsa1, rsa, and dsa are already enabled when the ssh enable rsa command is executed, the server is restarted with only rsa enabled.
- A connection cannot be established from a business LAN by only executing the ssh enable command. Setting must be made with the remote-access command to allow connections.
- Only one connection can be established at a time.
- If ssh is disabled when a connection using ssh has been established, the connection is not terminated.

(1) Synopsis

· Enables the ssh server using the specified protocol

```
ssh enable [rsa1] [rsa] [dsa]
```

Disables ssh (default)

```
no ssh enable
```

(2) Options

• [rsa1] [rsa] [dsa]

Specifies the SSH protocol version.

rsa1: RSA Version1rsa: RSA Version2dsa: DSA Version2

(3) Command mode

Global

(4) See also

ssh keygen

ssh keydel

show ssh

remote-access

(5) Examples

· Starts the SSH server with all SSH protocols supported

```
Switch(config) # ssh enable
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

8-134 C122-E003-02EN

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.21 ntp

8.2.21.1 ntp server

This command registers an NTP server and synchronizes the system clock with the NTP server:

- Three servers can be registered.
- The clock time is acquired from NTP servers in order of registration. In other words, the order is as follows:

NTP server registered first > NTP server registered second > NTP server registered third

- NTP authentication is not supported.
- Setting based on received NTP broadcasts is not supported.
- NTP version 4 is used.
- Acquisition processing is not performed for the clock time from any NTP server registered after the clock time is successfully acquired.
- An inquiry is sent to the NTP server when the command is entered.
- Clock time adjustments may take up to six minutes.

(1) Synopsis

· Registers an NTP server and synchronizes the system clock with the NTP server

```
ntp server <ip-address>
```

· Deletes the specified NTP server from the registered servers

```
no ntp server <ip-address>
```

Displays settings for checking

```
Switch(config) #show ntp server
Switch(config) #ntp server 10.10.10.10
Switch(config) #ntp server 10.10.10.11
Switch(config) #show ntp server
ntp server 10.10.10.10
ntp server 10.10.10.11
Switch(config) #
```

(2) Options

● <ip-address>

Specifies the IP address of an NTP server.

(3) Command mode

Global

(4) See also

ntp status show ntp

(5) Examples

Synchronizes the clock with NTP server 172.16.22.44

```
Switch(config) # ntp server 172.16.22.44
Switch(config) #
```

Uses the show command to check settings

```
Switch(config) #show ntp server
Switch(config) #ntp server 10.10.10.10
Switch(config) #ntp server 10.10.10.11
Switch(config) #show ntp server
ntp server 10.10.10.10
ntp server 10.10.10.11
Switch(config) #
Switch(config) #
```

8-136 C122-E003-02EN

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid IP address was specified.

Action: Enter the correct IP address.

Input parameter duplicate error.

Cause: Duplicated registration of the same ntp server was attempted.

Action: Check the ntp servers already registered.

· Set count over.

Cause: Registration of 4 or more ntp servers was attempted.

Action: Check the ntp servers already registered.

· Entry isn't existed.

Cause: Deletion of an unregistered ntp server was attempted.

Action: Check the ntp servers already registered.

8.2.21.2 ntp status

This command sets the interval of inquiries to an NTP server.

If multiple NTP servers are registered, the setting is made for all of the NTP servers.

Clock time adjustments make take up to six minutes.

Also, inquiries are sent to an NTP server at the following times:

- When the command is entered
- When the device is turned on and started
- When the device is restarted by the reload command

(1) Synopsis

· Specifies the interval of inquiries to an NTP server

```
ntp status <interval> <timeout>
```

Resets the interval of inquiries to an NTP server to the default value

```
no ntp status
```

(2) Options

• <interval>

Specifies the interval of inquiries to an NTP server.

Specify the interval in a range of 1 to 24 hours. The default setting is one hour.

<timeout>

Specifies the timeout time of an inquiry to the server.

Specify a time in a range of 1 to 15 seconds. The default setting is 3 seconds.

(3) Command mode

Global

(4) See also

ntp server

show ntp

(5) Example

Sets the interval of inquiries to an NTP server

```
Switch(config) # ntp status 12 5
Switch(config) #
```

8-138 C122-E003-02EN

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid parameter was specified.

Action: Specify the correct parameter.

8.2.22 Log

8.2.22.1 logging on

This command enables or disables message log (mlog) collection.

(1) Synopsis

```
logging {on | off}
```

(2) Options

- {on | off}
 - on (default): Enables message log collection.
 - off: Disables message log collection.

(3) Command mode

Global

(4) See also

logging level show logging

(5) Example

· Enables message log collection

```
Switch(config) # logging on
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.2.22.2 logging level

This command specifies the collection level of the message log (mlog). mlog, tlog, llog cannot be saved during execution of this command.

(1) Synopsis

Specifies the recording level of the message log

```
logging level {debug | info | notice | warning | error | crit | alert | emerg}
```

8-140 C122-E003-02EN

· Resets the collection level of the message log (mlog) to the default value

```
no logging level
```

(2) Options

- {debug | info | notice | warning | error | crit | alert | emerg}
 - debug: Debug message
 - info (default): General report message
 - notice: Notification message
 - warning: Warning message
 - error: Error message
 - crit: Fatal error message
 - alert: Message indicating that an immediate repair is required
 - emerg: Message to indicate a serious situation or an unstable system

(3) Command mode

Global

(4) See also

logging on

show logging

(5) Examples

Records levels "emerg" to "info" in the log

```
Switch(config) # logging level info
Switch(config) #
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

Input parameter error.

Cause: An invalid logging level was specified.

Action: Specify the correct logging level.

8.2.22.3 logging host

This command specifies the IP address of the log message (mlog) transfer destination.

The default setting is "0.0.0.0".

If the setting is the default setting, the message log is not transferred to an external device.

(1) Synopsis

Specifies the IP address of the log transfer destination

```
logging host <ip-address>
```

Resets the IP address of the log transfer destination to the default value (0.0.0.0)

```
no logging host
```

(2) Options

<ip-address>

Specifies the IP address of the transfer destination syslog server.

(3) Command mode

Global

(4) See also

logging on

show logging

8-142 C122-E003-02EN

(5) Example

Sets the IP address of the syslog transfer destination server to 172.16.22.44

```
Switch(config) # logging host 172.16.22.44
Switch(config) #
```

(6) Error Messages

· Input parameter error.

Cause: An invalid IP address was specified.

Action: Enter the correct IP address.

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Internal communication error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

· Input parameter error.

Cause: An invalid IP address was specified.

Action: Specify the correct IP address.

8.3 Operation Commands

This section describes the operation commands.

8.3.1 Console-related commands

This section describes the console-related commands.

8.3.1.1 clock set

This command sets the software clock. The setting values 0 to 9 for the month, day, hour, minute, and second are equivalent to 00 to 09.

Example:

```
switch#clock set 1:1:1 1 2 2003
Sat Feb 1 01:01:01 JST 2003
switch#clock set 01:01:01 01 02 2003
Sat Feb 1 01:01:01 JST 2003
switch#
```

(1) Synopsis

```
clock set <hh:mm:ss> <day> <month> <year>
```

(2) Options

- <hh:mm:ss>: Specifies the current time.
 - hh: Specifies the hour (0 to 23).
 - mm: Specifies the minute (0 to 59).
 - ss: Specifies the second (0 to 59).
- <day>: Specifies the day (1 to 31).
- <month>: Specifies the month (01 to 12).
- <year>: Specifies the year (1970 to 2037).

The hour, minute, second, day, and month can be entered as a one-digit or two-digit value.

The setting values 0 to 9 are equivalent to 00 to 09.

8-144 C122-E003-02EN

(3) Command mode

enabled exec

(4) See also

show clock

(5) Examples

Changes the time (using the specified parameters)

```
Switch# clock set 19:29:00 13 2 2003
Thu Feb 13 19:29:00 JST 2003
Switch#
```

(6) Error messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· parameter error.

Cause: Invalid month, day, hour, minute, or second specified

Action: Specify a correct value.

8.3.1.2 show clock

This command displays the current time.

(1) Synopsis

```
show clock
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

clock set

(5) Examples

· Displays the time

```
Switch# show clock
16:57:41.274 JST Sun Mar 3 2002
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.3 show filelist

This command lists directory information from the file system.

(1) Synopsis

```
show filelist
```

(2) Options

None

(3) Command mode

enabled exec

8-146 C122-E003-02EN

(4) See also

None

(5) Examples

· Lists directory information

Displayed items:

• Filename: File name

• Size: File size (Unit: bytes)

• Date: Gregorian calendar year, month, day, hour, minute, and second

• Number of files: Number of files in the directory

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.4 show history

This command lists the history of commands entered in the interactive shell.

Up to 32 commands can be listed. Commands entered before the last 32 commands entered are not displayed.

(1) Synopsis

```
[show] history
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Lists the commands that have been entered in the interactive shell

```
Switch> show history

1 show terminal status

2 show terminal list

3 show terminal pager off

4 show history
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.5 terminal pager

This command toggles the pager function setting of the terminal.

The default value is OFF.

(1) Synopsis

Toggles ON/OFF the pager function

```
terminal pager {on | off}
```

8-148 C122-E003-02EN

(2) Options

- {on|off}
 - on: Sets the pager function to ON.
 - off (default value): Sets the pager function to OFF.

(3) Command Mode

user exec

enabled exec

(4) See also

show terminal

(5) Examples

Toggles the pager function setting to ON

```
Switch>terminal pager on Switch>
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.6 show terminal

This command displays the basic settings for terminal output.

The window size setting of the terminal depends on the terminal type.

(1) Synopsis

Displays terminal settings

```
show terminal [status]
```

· Displays information about the terminal users

```
show terminal list
```

Displays ON/OFF information on the pager function

```
show terminal pager
```

Displays information on the window size of the terminal

```
show terminal window
```

(2) Options

• status: Displays terminal settings.

• list: Displays information about the terminal users.

• pager: Displays ON/OFF information on the pager function.

• window: Displays the window size of the terminal.

(3) Command Mode

user exec

enabled exec

(4) See also

terminal pager

(5) Examples

Displays terminal settings

Displayed items:

8-150 C122-E003-02EN

• Device: Output terminal name

• Column: Maximum number of characters output per line

• Row: Number of lines output by the pager function in one operation

• Type: Output terminal type

• Pager: Activation status of the pager function

Displays information about the terminal users

```
Switch>terminal list

Key User Device

263 user1 pts/0
260 user2 pts/1

Switch>
```

Displayed items:

• Key: Task number

• User: Login user

• Device: Output terminal name

Displays ON/OFF information on the pager function

```
Switch> show terminal pager

Attribute Value

Pager On

Switch>
```

Displayed items:

• Pager: Pager function ON or OFF

Displays the window size of the terminal

Switch> show	terminal window
Attribute	Value
Column Row	80 24
Switch>	

Displayed items:

• Column: Maximum number of characters output per line

• Row: Number of lines output by the pager function in one operation

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.7 quit

This command quits the active shell.

If a remote console is used and all shells are closed, the current session ends.

(1) Synopsis

quit

(2) Options

None

(3) Command Mode

user exec

8-152 C122-E003-02EN

enabled exec

(4) See also

None

(5) Examples

· Returns to the [login] prompt after quitting the shell

```
Switch> quit
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8.3.1.8 telnet

This command is used to communicate with other hosts using the telnet protocol.

(1) Synopsis

```
telnet [<HOST>]
```

(2) Options

● <HOST>

Specifies the IP address of the telnet server. If this parameter is omitted, telnet subcommand mode is set.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Sets subcommand mode

```
Switch# telnet telnet>
```

Connects to the telnet server (telnet <ip-address>)

```
Switch# telnet 128.9.6.10
Trying 128.9.6.10 . . .
Connection to 128.9.6.10.
Escape character is '^]'
Login:
```

Switches to subcommand mode from the telnet server prompt.
 To return to the previous mode, the [Enter] key must be pressed without input.

```
Remotehost> ([Ctrl]+[]] key input)
telnet> ([Enter] key input)
Remotehost>
```

(6) Error messages

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Parameter error.

Cause: Invalid IP address specified in the telnet command

Action: Enter the correct IP address.

telnet: Unable to connect to remote host: Network is unreachable

Cause: The destination server could not be found.

Action: Check the network connection to the destination server.

telnet: Unable to connect to remote host: Connection refused

Cause: The destination server refused the attempted connection.

Action: Check the destination server settings.

telnet: Unable to connect to remote host: No route to host

Cause: The destination server could not be found in the same network.

8-154 C122-E003-02EN

Action: Check the network connection to the destination server.

telnet: Unable to connect to remote host: *

Cause: The destination server could not be contacted.

Action: Check the network connection to the destination server.

Check the destination server settings.

?Parameter error

Cause: Invalid parameter in the entered subcommand

Action: Enter the command string correctly.

?Invalid command

Cause: Invalid input subcommand

Action: Enter the command string correctly.

?Already connected to *.*.*.*.

Cause: The open subcommand was entered while *.*.*.*. was still connected.

Action: Terminate the connection, and then execute the subcommand.

?Need to be connected first.

Cause: The close subcommand was entered while no server was connected.

Action: Execute the subcommand when a connection to a server has been established.

?Invalid help command *

Cause: Invalid subcommand name [*] of help entered in telnet command mode

Action: Connect to a server, and check the entered subcommand name of help.

Internal error:*

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.1.9 ssh

This command is used to communicate with other hosts using the ssh protocol.

Specify a user name consisting of up to 32 characters.

Uppercase and lowercase letters (case sensitive), digits, and the symbols listed below are the characters that can be used. Null characters cannot be used.

Symbols that can be used: $\#\%\&()=\sim|-@;+*[]<>^.{}'__$

(1) Synopsis

```
ssh [<HOST>]
```

(2) Options

· <HOST>: Specifies the IP address of the ssh server.

If this option is omitted, the host address input prompt is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Specifies no IP address for the ssh server

```
switch#ssh
host : 192.168.2.50
username : xxxxx
xxxxx@192.168.2.50's password:
```

Specifies the IP address of the ssh server

```
switch#ssh 192.168.2.50
username : xxxxx
xxxxx@192.168.2.50's password:
```

8-156 C122-E003-02EN

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Parameter error

Cause: Invalid < HOST > or [username]

Action: Specify a correct value.

· Permission denied.

Cause: Invalid password

Action: Enter the correct password.

ssh: connect to address *.*.*.* port 22: Network is unreachable

Cause: The destination server cannot be connected.

Action: Check the network environment.

ssh: connect to address *.*.*.* port 22: Connection refused

Cause: The destination server refused the attempted connection.

Action: Check the destination server status.

ssh: connect to address *.*.*.* port 22: No route to host

Cause: The destination server cannot be connected.

Action: Check the destination server.

ssh: connect to address *.*.* port 22: *

Cause: The destination server cannot be connected.

Action: Check the network connection to the destination server.

Server authentication failure: *

Cause: The server cannot be connected due to authentication error.

Action: Check the destination server settings.

· Internal error:*

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.1.10 tftp

This command transfers files to or from the tftp server using TFTP.

The default transfer mode is binary transfer mode.

Any 2-byte to 15-byte character string consisting of en-size alphanumeric characters, including '-' and '_', can be entered for a file name in put/get.

The command cannot be executed during execution of any of the following commands: clear ramdisk, install, restore config, save config, tftp.

(1) Synopsis

```
tftp [<HOST>]
```

(2) Options

• <HOST>: Specifies the IP address of the tftp server.

If this option is omitted, the command will work as a tftp subcommand without connection to the server.

(3) Command mode

enabled exec

(4) See also

clear ramdisk

install

restore config

save config

(5) Examples

· Switches to the tftp subcommand

```
Switch# tftp tftp>
```

8-158 C122-E003-02EN

Acquires an online file after connecting to the tftp server.
 The tftp connection is terminated after the file is acquired.

```
switch#tftp 10.10.10.10

tftp> get online
Received 12386112 bytes in 541.1 seconds

tftp> q
switch#
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Parameter error

Cause: An invalid parameter was entered.

Action: Enter the command string correctly.

Command is already running.

Cause: The following commands are currently running.

clear ramdisk / install / restore config / save config / tftp

Action: Reenter the command after the current command exits.

tftp: sendto: *

Cause: Data transmission to the tftp server failed.

Action: Check the status of the network connection to the tftp server.

· tftp: recvfrom: *

Cause: Data reception from the tftp server failed.

Action: Check the status of the network connection to the tftp server.

Transfer timed out.

Cause: The tftp server has not started at the connected host. Alternatively, connection is not allowed. Another possibility is that file transfer is not possible due to a connection error.

Action: Check the connection to the tftp server. Use the [show ether statistics] command to check for possible errors.

Check the interface settings of the business LAN.

Error code 1: File not found

Cause: The specified file is not found in the tftp server.

Action: Check if the tftp server is running. Check if the specified file exists in the tftp server.

Error code 2: Access violation

Cause: An error occurred during access to the file in the server.

Action: Wait for a while and reexecute. Check the settings of the server.

· Server error:*

Cause: An error occurred at the tftp server.

Action: Wait for a while and reexecute. Check the settings of the server.

· Invalid command

Cause: Invalid command string entry in subcommand mode

Action: Enter the command string correctly.

No target machine specified.

Cause: The put or get subcommand was entered without connecting to the server.

Action: Transfer the file after connecting to the server.

· Open error.

Cause: A non-existent file was specified for the put subcommand execution.

Action: Check the file name

Invalid help command *.

Cause: An invalid subcommand name was specified for the help subcommand

execution.

Action: Check the subcommand name.

Internal error:*

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-160 C122-E003-02EN

8.3.2 Unit-related commands

This section describes the unit-related commands.

8.3.2.1 change

This command specifies the offline and online programs and configuration definition used in a restart.

This command cannot be executed during execution of the change, reload, or install command.

(1) Synopsis

```
change {config | offline | online} {0 | 1}
```

(2) Options

- {config | offline | online}
 - config: Specifies the configuration definition used in a restart.
 - offline: Specifies the offline program used in a restart.
 - online: Specifies the online program used in a restart.
- $\{0 \mid 1\}$: Specifies the bank.
 - 0: Bank 0
 - 1: Bank 1

(3) Command mode

enabled exec

(4) See also

install

show system information

reload

(5) Examples

Specifies Bank 0 as the configuration definition used in a restart

```
Switch# change config 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

Specifies Bank 0 as the offline program used in a restart

```
Switch# change offline 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

Specifies Bank 0 as the online program used in a restart

```
Switch# change online 0
Are you sure? [y/n]: y
Now Perform...
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Command is already running.

Cause: Execution of one of the following commands is in progress:

change, reload, install.

Action: Re-enter the command after the command currently being executed ends.

8-162 C122-E003-02EN

Bank cannot be switched.

Cause: Banks cannot be switched.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.2.2 clear config

This command clears the configuration definition file. Configuration definition information is reflected only after the unit is restarted.

The command cannot be executed during execution of any of the following commands: clear config, save, save config, restore config.

(1) Synopsis

```
clear config {0 | 1}
```

(2) Options

- {0 | 1}: Specifies the configuration definition bank to be cleared.
 - 0: Configuration definition bank 0
 - 1: Configuration definition bank 1

(3) Command mode

enabled exec

(4) See also

save

save config

restore config

(5) Examples

· Clears the configuration definition

```
Switch# clear config 0
Are you sure? [y/n]: y
Now perform...
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Command is already running.

Cause: Execution of one of the following commands is in progress:

change, reload, install.

Action: Re-enter the command after the command currently being executed ends.

· Bank cannot be switched.

Cause: Banks cannot be switched.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

8-164 C122-E003-02EN

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.2.3 install

This command installs the offline or online program to an area that is not currently used for startup.

This command cannot be executed during execution of the clear ramdisk, install, show system information, tftp, change, or reload command.

The command cannot be interrupted by the [Ctrl]+[C] keys.

The command cannot be executed during execution of any of the following commands: clear ramdisk, install, show system information, tftp.

Do not turn off power during installation.

(1) Synopsis

 Installs the offline or online program to an area that is not currently used for startup

```
install {offline | online}
```

(2) Options

• {offline | online}

- offline: Installs an offline program.

- online: Installs an online program.

(3) Command mode

enabled exec

(4) See also

```
change
clear ramdisk
show system information
tftp
reload
```

(5) Examples

· Installs an offline program

```
Switch# install offline
Are you sure? [y/n]:y
Now perform...

ERASE mtd7
Erased 1024 Kibyte @ 0 -- 100% complete.

offline size:1048576byte
524288
1048576 complete

/dev/mtdblock7 write data sum check
Normal End
Switch#
```

8-166 C122-E003-02EN

Installs an online program

```
Switch# install online
Are you sure? [y/n]:y
Now perform...
ERASE mtd1
Erased 1024 Kibyte @ 0 -- 100% complete.
kernel size:721048byte
524288
721048 complete
/dev/mtdblock1 write data sum check
ERASE mtd3
Erased 13312 Kibyte @ 0 -- 100% complete.
rootfs size:11665408byte
1048576
2097152
3145728
4194304
5242880
6291456
7340032
8388608
9437184
10485760
11534336
11665408 complete
/dev/mtdblock3 write data sum check
mtdblock5 len:176
Normal End
Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· File error.

Cause: The specified file is corrupt.

Action: Download the correct file.

· Open error.

Cause: The file has not been downloaded yet.

Action: Download the correct file.

· Command is already running.

Cause: Execution of one of the following commands is in progress:

clear ramdisk, install, show system information, tftp, change, reload.

Action: Reenter the command after the current command exits.

· Bank cannot be switched.

Cause: Installation failed.

Action: Turn off power to the GSWB to shut it down, remove the GSWB from the cabinet, reinstall the GSWB in the cabinet, and then retry the operation. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

the unit. The matricely, contact a continua solvice ong.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-168 C122-E003-02EN

8.3.2.4 reload

This command restarts the whole unit.

This command cannot be executed during execution of the change, reload, or install command.

(1) Synopsis

Restarts the whole unit after diagnostics processing if specified

```
reload [non-idiag | idiag]
```

(2) Options

• [non-idiag | idiag] (optional)

If non-idiag is specified, the device will be restarted without diagnosis. If idiag is specified, the device will be restarted after all diagnostic processing is performed. By default, the device will be restarted without diagnosis.

(3) Command mode

enabled exec

(4) See also

change

install

(5) Examples

· Restarts without diagnostics

```
Switch# reload
Are you sure? [y/n]:y
Now perform...
```

Restarts after diagnostics processing is completed

```
Switch# reload idiag
Are you sure? [y/n]:y
Now perform...
```

(6) Error Messages

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Command is already running.

Cause: Execution of one of the following commands is in progress:

change, reload, install

Action: Reenter the command after the command currently being executed ends.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again,

collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.2.5 show globalmac

This command displays MAC information.

The global MAC address can also be displayed by the show system information command. (See Section 8.3.2.8, "show system information")

(1) Synopsis

show globalmac

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

show system information

8-170 C122-E003-02EN

(5) Examples

Displays the global MAC address

```
Switch# show globalmac
Global MAC Address
00:00:0e:90:00:00
Switch#
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· Mac address isn't set.

Cause: The MAC address has not been specified.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit or contact a certified service engineer.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.2.6 show memory

This command displays the status of each memory resource.

(1) Synopsis

```
show memory
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

None

(5) Examples

· Displays the memory resource status

```
Switch# show memory

Resource: In Use / Avail ( %)
-----dynamic: 197607424 / 458280960 ( 44%)

Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-172 C122-E003-02EN

8.3.2.7 show processes

This command displays CPU usage.

The show processes detail command cannot be interrupted by the [Ctrl]+[C].

Up to 15 bytes of process names are displayed by the show processes detail command.

(1) Synopsis

```
show processes [detail]
```

(2) Options

• detail (optional)

Displays all PIDs and names of the processes running on the CPU. If this option is omitted, the command will display CPU usage.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Displays CPU usage (the parameter is omitted)

Displayed items:

• 1min: CPU usage in the last minute. If no information is available, "---" is displayed.

- 5min: CPU usage in the last 5 minutes. If no information is available, "---" is displayed.
- 15min: CPU usage in the last 15 minutes. If no information is available, "---" is displayed.
- Displays processes running on the CPU

```
Switch# show processes detail
 1 init
 2 keventd
 3 ksoftirqd CPU0
 4 kswapd
 5 bdflush
  6 kupdated
 7 mtdblockd
 42 jffs2_gcd_mtd4
 72 mlogd
 148 insmod
 152 ipmi
156 ipmi_ms
157 bcmDPC
 158 ipmi rc
162 bcmL2X.1
 163 bcmL2X.0
 165 bcmTC
166 bcmCNTR.
 167 bcmRX.0
 168 bcmRX.1
 172 insmod
 175 tunnel thrd
 377 bash
 419 in.telnetd
 420 gsh
 3206 xinetd
3289 cron
3308 ipmi_rc
5750 ps
          -----
Switch#
```

8-174 C122-E003-02EN

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.2.8 show system information

This command displays the machine information (model, ID, serial No.), running information, program (bank) information, and optional information.

The global MAC address can also be displayed by the show globalmac command.

This command cannot be executed during execution of any of the following commands: install, show system information.

(1) Synopsis

show system information

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

change
install
save
show globalmac

(5) Examples

Displays the system information (as specified in show system information)

```
Switch# show system information
Machine Information
 Hostname
                        : switch
 Board Infomation
                       : 2005-03-03
  Mfg Date/Time
                       : FUJITSU LIMITED
  Board Manufacturer
  Board Product Name
                       : GSWB 1G
  Board Serial No
                       : 0123456789
  Board Part No
                        : LA0123456789 99999
Running online : online0  V01L01-A30  2005-05-16  19:03:34
Running config : config0 0.1 2005-05-16 19:54:06
Running offline: offline0 V001L003 2005-04-18 16:16:29
online Information
*online0 : V01L01-A30 2005-05-16 19:03:34
             : V01L01-A30 2005-05-16 19:03:34
 online1
 *config0
             : 0.1
                        2005-05-16 19:54:06
                                                         ]
         : *** No File ***
 config1
Globalmac : 00:33:44:55:66:77
offline Information
 offline0 : V001L003 2005-04-18 16:16:29
*offline1
           : V001L003
                          2005-04-18 16:16:29
Switch#
```

Displayed items:

• Machine Information: Unit information

- Hostname: Unit name

- Board Information: FRU information

• Running Online: Online firmware information at startup and firmware version number and creation date

8-176 C122-E003-02EN

- Running Config: Configuration definition file information at startup and creation date.
- Running Offline: Offline firmware information at startup and firmware version number and creation date
- online Information: Status of online 0/1 and config 0/1. "*" indicates the beginning of the current EEPROM information.
 - online0/1: Firmware version number and creation date.

 If a firmware error is detected, "*** Invalid online ***" is displayed.
 - config0/1: Firmware version number and creation date.
 Comments specified by the save config command are displayed between [and], under the date.

If no file is found, "*** No File ***" is displayed.

If the file header is missing, "*** Error File ***" is displayed.

- Globalmac: Global MAC address (XX:XX:XX:XX:XX)
- offline Information:
 - Version number and creation date of the offline0/1 firmware. "*" indicates the firmware that is started the next time.

If a firmware error is detected, "*** Invalid offline ***" is displayed.

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Command is already running.

Cause: The following command is running.

install

Action: Reenter the command after the current command exits.

8.3.2.9 show system status

This command displays dynamic information about the unit.

(1) Synopsis

```
show system status
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

```
Switch# show system status

MODULE STATUS SUBSTATUS ERROR

SYSTEM Online Active

Switch#
```

Displayed items:

STATUS

- Online: Ready for operation

- Nouse: Not ready for operation

- Halt: Permanent failure

- Config: Configuration definition setting

SUBSTATUS

- Normal: Processing was completed normally.

- Error: An error was detected.

- Active: Operating

8-178 C122-E003-02EN

ERROR

- Config ERROR: An error occurred.

- Hard ERROR: A hardware error occurred.

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.2.10 clear ramdisk

This command deletes files in the TFTP work area.

The command cannot be executed during execution of any of the following commands: install, clear ramdisk, restore config, save config, tftp.

(1) Synopsis

clear ramdisk

(2) Options

None

(3) Command mode

enabled exec

(4) See also

install

tftp

restore config

save config

(5) Examples

· Deletes files in the work area

```
Switch# clear ramdisk
Are you sure [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

Command is already running.

Cause: One of the following commands is running.

install / clear ramdisk / restore config / save config / tftp

Action: Reenter the command after the current command exits.

8-180 C122-E003-02EN

8.3.2.11 eeprominit

This command deletes SDR/SEL information.

(1) Synopsis

```
eeprominit
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

None

(5) Examples

```
Switch# eeprominit
Are you sure? [y/n]: y
Now Perform...
Switch#
```

(6) Error messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and then restart the unit. Alternatively, contact a certified service engineer.

8.3.3 Port-related commands

8.3.3.1 show interface status

This command displays interface status information.

(1) Synopsis

show interface status <interface-id>

(2) Options

- <interface-id>: Specifies the interface whose status is to be displayed.
 - GigabitEthernet 0/1-8
 - IO_Unit 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7
 - port 1-35

(3) Command mode

user exec

enabled exec

(4) See also

None

8-182 C122-E003-02EN

(5) Examples

Processing with GigabitEthernet 0/1 specified

```
Switch# show interface status GigabitEthernet 0/1
17 GigabitEthernet 0/1
Basic information:
port type: 1000base-T
MDI status: MDI
Configuration:
Name: GigabitEthernet 0/1
Port admin status: up
Speed: auto
Duplex: -
Capabilities: 10half, 10full, 100half, 100full, auto
Broadcast storm status: Enable / threshold: 4096 packets/
Multicast storm status: Enable / threshold: 1024 packets/
second
DLF storm status: Disable
Receive Frow control status: Enable
Send Frow control status: Enable
Current status:
Link status:up
Operation speed-duplex: 1000full
```

Displayed items:

- port type: Port type
 - 1000base-T
 - 10Gbase-LR
 - port-channel
- MDI status: MDI status
 - MDI: Normal MDI mode
 - MDI-X: Crossover MDI mode
 - -: Link Down
 - For IO Unit 0 0-7 1, TenGigabitEthernet 1/1-2, and port-channel 1-7
- NAME: Interface name
- Port admin status:
 - up: Interface ready for communication
 - down: Interface not ready for communication
 - hard err: Interface not available because of a hardware error

- Speed: Setup port speed (Unit: M)
 - 10
 - 100
 - auto
- Duplex: Setup duplex mode
 - half: Half duplex mode
 - full: Full duplex mode
 - -: Auto port speed
- Capabilities: Combination of the port speed and duplex mode that can be set
 - 10half
 - 10full
 - 100half
 - 100full
 - auto
 - - (Speed/duplex mode cannot be set)
- Broadcast storm status: Rate control status for a broadcast storm
 - Enable / threshold: Threshold packets/second
 - Disable
- Multicast storm status: Rate control status for a multicast storm
 - Enable / threshold: Threshold packets/second
 - Disable
- DLF storm status: Rate control status for a DLF storm
 - Enable / threshold: Threshold packets/second
 - Disable
- Receive Flow control status: Receive flow control status
- Send Flow control status: Send flow control status
- Link status: Client port status
 - up: Interface ready for communication
 - down: Interface not ready for communication
- Operation speed-duplex: Actual port speed and duplex mode

If the specified interface type is port-channel, the master port status is displayed.

(6) Error Messages

· Port-channel ** is not defined.

Cause: An undefined channel group is specified.

Action: Check the channel group definition.

8-184 C122-E003-02EN

% Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.3.2 show interface counters

This command displays statistical information about an interface.

The statistical information is cleared by the clear ether statistics command.

(1) Synopsis

```
show interface counters <interface-id>
```

(2) Options

- <interface-id>: Specifies the interface whose statistical information is to be displayed.
 - IO Unit 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - FastEthernet 2/1-2/2
 - port 1-35

(3) Command Mode

user exec enabled exec

(4) See also

clear ether statistics

(5) Examples

Displays the information, with GigabitEthernet 0/1 specified

```
Switch# show interface counters GigabitEthernet 0/1
17 GigabitEthernet 0/1
Iftable stats:
Octets input: 19648, Octets output: 714944
Unitcast input: 0, Unitcast output: 0
Discard input: 0, Discard output: 0
Error input: 0, Error output: 0
QLen output: 0
Extended iftable stats:
Multi-cast input: 0, Multi-cast output: 10524
Broadcast input: 136, Broadcast output: 0
Ether-like stats
Alignment errors: 0, FCS errors: 0
Single collosion frames: 0, Multiple collision frames: 0
Deferred transmissions: 0
Late collisions: 0, Excessive collisions: 0
Internal mac transmit errors: 0
 Internal mac receive errors: 0
 Frame too longs: 0, Carrier sense errors: 0
RMON status:
Octets: 734720, Packets: 10661
Broadcast pkts: 136, Multi-cast pkts: 10525
Undersize pkts: 0, Oversize pkts: 0
Fragments: 0, Jabbers: 0
CRC align errors: 0, Collisions: 0
 Packet size == 64 octets: 9877
 Packet size 65 to 127 octets: 93
 Packet size 128 to 255 octets: 691
Packet size 256 to 511 octets: 0
Packet size 512 to 1023 octets: 0
 Packet size 1024 to 1518 octets: 0
Switch#
```

8-186 C122-E003-02EN

Displayed items:

• Iftable stats

- Octets input: Number of received octets
 Octets output: Number of transmitted octets
- Unitcast input: Number of received unicast frames
 Unitcast output: Number of transmitted unicast frames
- Discard input: Number of frames discarded without being received Discard output: Number of frames discarded without being transmitted
- Error input: Number of received errors
 Error output: Number of transmitted errors
- QLen output: Transmit queue length

• Extended iftable stats

- Multi-cast input: Number of received multicast frames
 Multi-cast output: Number of transmitted multicast frames
- Broadcast input: Number of received broadcast frames
 Broadcast output: Number of transmitted broadcast frames

• Ether-like stats

- Alignment errors: Number of alignment errors
- FCS errors: Number of FCS errors
- Single collision frames: Number of frames that failed to be transmitted in one attempt
- Multiple collision frames: Number of frames that failed to be transmitted in multiple attempts
- Deferred transmissions: Number of transmission attempts in which transmission was initially deferred because media was in use
- Late collisions: Number of times that a collision was detected
- Excessive collisions: Number of times that transmission failed because of excessive collisions
- Internal mac transmit errors: Number of frames that failed to be transmitted because of an external transmission error
- Internal mac receive errors: Number of frames that failed to be received because of an internal reception error
- Frame too longs: Number of transmitted frames whose length exceeds the maximum length
- Carrier sense errors: Number of times that carrier detection was lost during frame transfer

• RMON status:

- Octets: Number of octets
- Packets: Number of packets
- Broadcast pkts: Number of broadcast packets
- Multi-cast pkts: Number of multicast packets
- Undersize pkts: Number of packets that are smaller than the minimum size
- Oversize pkts: Number of packets that are larger than the maximum size
- Fragments: Number of fragments
- Jabbers: Number of Jabbers
- CRC align errors: Number of CRC alignment errors
- Collisions: Number of collisions
- Packet size == 64 octets: Number of transmitted/received packets whose size is 64 octets
- Packet size 65 to 127 octets: Number of transmitted/received packets whose size ranges from 65 to 127 octets
- Packet size 128 to 255 octets: Number of transmitted/received packets whose size ranges from 128 to 255 octets
- Packet size 256 to 511 octets: Number of transmitted/received packets whose size ranges from 256 to 511 octets
- Packet size 512 to 1023 octets: Number of transmitted/received packets whose size ranges from 512 to 1023 octets
- Packet size 1024 to 1518 octets: Number of transmitted/received packets whose size ranges from 1024 to 1518 octets

8-188 C122-E003-02EN

Displays the information, with TenGigabitEthernet 1/1 specified

```
Switch# show interface counters TenGigabitEthernet 1/1
25 TenGigabitEthernet 1/1
Iftable stats:
Octets input: 19648, Octets output: 714944
Unitcast input: 0, Unitcast output: 0
Discard input: 0, Discard output: 0
Error input: 0, Error output: 0
QLen output: 0
Extended iftable stats:
Multi-cast input: 0, Multi-cast output: 10524
Broadcast input: 136, Broadcast output: 0
Ether-like stats
FCS errors: 0, Frame too longs: 0
RMON status:
Octets: 734720, Packets: 10661
Broadcast pkts: 136, Multi-cast pkts: 10525
Undersize pkts: 0, Oversize pkts: 0
Fragments: 0, CRC align errors: 0,
Packet size == 64 octets: 9877
Packet size 65 to 127 octets: 93
Packet size 128 to 255 octets: 691
Packet size 256 to 511 octets: 0
Packet size 512 to 1023 octets: 0
Switch#
```

Displayed items:

- Octets input: Number of received octets
- Octets output: Number of transmitted octets
- Unitcast input: Number of received unicast frames
- Unitcast output: Number of transmitted unicast frames
- Discard input: Number of frames discarded without being received
- Discard output: Number of frames discarded without being transmitted
- Error input: Number of received errors
- Error output: Number of transmitted errors
- QLen output: Transmit queue length
- Multi-cast input: Number of received multicast frames
- Multi-cast output: Number of transmitted multicast frames
- Broadcast input: Number of received broadcast frames
- Broadcast output: Number of transmitted broadcast frames

- FCS errors: Number of FCS errors
- Frame too longs: Number of transmitted frames whose length exceeds the maximum length
- Octets: Number of octets
- Packets: Number of packets
- Broadcast pkts: Number of broadcast packets
- Multi-cast pkts: Number of multicast packets
- Undersize pkts: Number of packets that are smaller than the minimum size
- Oversize pkts: Number of packets that are larger than the maximum size
- Fragments: Number of fragments
- CRC align errors: Number of CRC alignment errors
- Packet size == 64 octets: Number of transmitted/received packets whose size is 64 octets
- Packet size 65 to 127 octets: Number of transmitted/received packets whose size ranges from 65 to 127 octets
- Packet size 128 to 255 octets: Number of transmitted/received packets whose size ranges from 128 to 255 octets
- Packet size 256 to 511 octets: Number of transmitted/received packets whose size ranges from 256 to 511 octets
- Packet size 512 to 1023 octets: Number of transmitted/received packets whose size ranges from 512 to 1023 octets

(6) Error Messages

· Port-channel ** is not defined.

Cause: An undefined channel group is specified.

Action: Check the channel group definition.

% Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

8-190 C122-E003-02EN

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.3.3 show interface switchport

This command displays interface settings.

When the interface is in access mode, the access vlan id is displayed in Allowed VLAN and Native VLAN.

(1) Synopsis

```
show interface switchport <interface-id>
```

(2) Options

- <interface-id>: Specifies the interface whose settings are to be displayed.
 - GigabitEthernet 0/1-8
 - IO Unit 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7
 - port 1-33

(3) Command Mode

user exec

enabled exec

(4) See also

show vlan

show wrr-queue cos-map

(5) Examples

Displays the settings, with the Interface in Access mode (port VLAN)

```
Switch# show interface switchport GigabitEthernet 0/1
GigabitEthernet 0/1
VLAN membership mode: Access
Native VLAN: 1
Priority for untagged traffic: 0
Allowed VLAN: 1
Switch#
```

Displays the settings, with the Interface in Trunk mode (tag VLAN)

```
Switch# show interface switchport GigabitEthernet 0/1
GigabitEthernet 0/1
VLAN membership mode: Trunk
Native VLAN: 1
Priority for untagged traffic: 0
Allowed VLAN: 1 10 20
Switch#
```

Displayed items:

- VLAN membership mode: VLAN membership mode (Trunk/Access)
- Native VLAN: Native VLAN ID (1 to 4094)
 When the membership mode is Access, the access vlan id is displayed.
- Priority for untagged traffic: Priority of traffic without a tag (0 to 7)
- Allowed Vlan: Permitted VLAN ID (1 to 4094)
 In Trunk mode, all permitted VLAN IDs are displayed.
 When the membership mode is Access, the access vlan id is displayed.

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-192 C122-E003-02EN

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

· % Not implement daughter card.

Cause: The specified interface id (port 25-26) does not exist.

Action: Specify an existing interface id.

8.3.3.4 show monitor session

This command displays port mirroring setting information.

(1) Synopsis

show monitor session

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

monitor session source

monitor session destination

(5) Examples

Displayed items:

- Source Ports
 - RX Only: Interface for transmission monitoring
 - TX Only: Interface for reception monitoring
 - Both: Interface for transmission/reception monitoring
- Destination Port: Interface of the monitoring result output destination

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-194 C122-E003-02EN

8.3.3.5 show portstat

This command displays the statuses of the GigabitEthernet interface, TenGigabitEthernet interface, and FastEthernet interface.

(1) Synopsis

```
show portstat
```

(2) Options

None

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

```
Switch# show portstat
1 IOU 0 0
                                        1G/full/both
                                                         up
2 IOU 0 1
                                        1G/full/both
                                                         up
16 IOU 7 1
                                        1G/full/both
                                                         up
17 GigabitEthernet 0/1
                                     :---/---
                                                         down
18 GigabitEthernet 0/2
                                      : 10M/half/off
                                                         up
19 GigabitEthernet 0/3
                                     :100M/full/both
                                                         up
20 GigabitEthernet 0/4
                                     :100M/full/send
                                                         up
21 GigabitEthernet 0/5
                                     :100M/full/recv
                                                         up
22 GigabitEthernet 0/6
                                        1G/full/both
                                                         up
25 TenGigabitEthernet 1/1
                                     : 10G/full/both
                                                         up
26 TenGigabitEthernet 1/2
                                     : 10G/full/off
                                                         up
27 port-channel 1
                                                         up
 23 GigabitEthernet 0/7
                                        1G/full/both
                                                         up
                                     :---/---
 24 GigabitEthernet 0/8
                                                         down
Switch#
```

Displayed items:

Interfaces whose information is displayed:

- IO Unit 0 0-7 1: Backpanel interface name
- GigabitEthernet 0/1-24: 1000Base-T interface name
- TenGigabitEthernet 1/1-2: 10GBase-LR interface name
- port-channel 1-7: port-channel name

Displayed names:

- speed/duplex/flow: Line speed, duplex mode, and flow control when communication is ready
 - Line speed (bps): 10M/100M/1G/10G
 - Duplex mode: FULL (full duplex) or HALF (half duplex)
 - Flow control: SEND (transmission), RECV (reception), BOTH (transmission/reception) or OFF (no control)
- up / down:
 - up: Communication ready
 - down: Communication not ready

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-196 C122-E003-02EN

8.3.3.6 show port-channel

This command displays port channel setting information.

(1) Synopsis

```
show port-channel [<channel-group-number>]
```

(2) Options

< channel-group-number > (optional)

Specifies the channel group number of the port channel whose setting information is to be displayed. If this parameter is omitted, channel group numbers of all port channels are assumed.

(3) Command Mode

user exec

enabled exec

(4) See also

interface port-channel

channel-group

port-channel load-balance

(5) Examples

```
Switch# show port-channel
27 port-channel 1
 Load Blance: src-dst-mac
 Member Port:
   17 GigabitEthernet 0/1
                               :Master
   18 GigabitEthernet 0/2
   21 GigabitEthernet 0/5
                               :Anchor
28 port-channel 2
 Load Blance: src-dst-mac
 Member Port:
   19 GigabitEthernet 0/3
                              :Master
   20 GigabitEthernet 0/4
                               :Anchor
29 port-channel 3
 Load Blance: src-mac
 Member Port:
   25 TenGigabitEthernet 1/1 :Master/ Anchor
   26 TenGigabitEthernet 1/2
```

Displayed items:

- Load Balance: Load balance rule
 - src-mac: Uses hash for the source MAC address
 - dst-mac: Uses hash for the destination MAC address
 - src-dst-mac: Uses hash for the source/destination MAC addresses
 - src-ip: Uses hash for the source IP address
 - dst-ip: Uses hash for the destination IP address
 - src-dst-ip: Uses hash for the source/destination IP addresses

8-198 C122-E003-02EN

Member Port: List of member ports

- Master: Master port

Each member port of the port channel inherits the attributes (speed, duplex, storm-control, and flowcontrol: only flowcontrol for TenGigabitEthernet) of this port.

- Anchor: Anchor port

Port that is the output destination of unlearned frames, autonomous frames, and broadcast frames addressed to the port channel

Among member ports that can be used for communication and excluding the master port, the port with the lowest port number is selected as the anchor port. If the master port is the only port that can be used for communication, however, the master port is also the anchor port.

If the anchor port can no longer be used for communication or the member ports of the port channel are changed, the anchor port is reselected.

(6) Error Messages

Port-channel ** is not defined.

Cause: An undefined channel group is specified.

Action: Check the channel group definition.

% Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4 IP-related commands

8.3.4.1 ip dhcp restart

This command retransmits a BOOTP or DHCP client request.

If you specify ip host bootp/dhcp, you need to execute this command.

(1) Synopsis

```
ip dhcp restart
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

ip host

(5) Examples

Sends a Bootp/DHCP client request

```
Switch# configure
Switch(config)# ip host bootp/dhcp
Switch(config)# exit
Switch# ip dhcp restart
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-200 C122-E003-02EN

Can't get ip address.

Cause: IP address acquisition failed.

Action: Check the DHCP/BOOTP server and the network status.

8.3.4.2 clear arp

This command deletes dynamic entries from the ARP table. The ARP aging time is random (5 to 20 minutes).

(1) Synopsis

```
clear arp [<ip-address>]
```

(2) Options

• <ip-address> (optional)

Specifies the IP address of the dynamic ARP entry to be deleted.

If this parameter is omitted, all dynamic ARP entries are deleted.

Specify the IP address basically in the form of xxx.xxx.xxx. xxx is a decimal number ranging from 0 to 255.

(3) Command mode

enabled exec

(4) See also

show arp

(5) Examples

 Deletes the dynamic ARP entry whose IP address is 200.10.2.15 from the ARP table

```
Switch# clear arp 200.10.2.15
Switch#
```

· Deletes all dynamic ARP entries from the ARP table

```
Switch# clear arp
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4.3 ping

This command determines whether communication is possible with the host at the specified IP address by transmitting ICMP (Echo Request) packets to the specified IP address and receiving ICMP (Echo Reply) packets.

The ping command does not support transmission to broadcast addresses. This unit returns the following ICMP messages:

- ICMP Echo Reply message
- ICMP Destination Unreachable (port unreachable) message

(1) Synopsis

 Determines whether communication is possible with the host at the specified IP address

(2) Options

<ip-address>

Host IP address used to determine whether communication is possible.

8-202 C122-E003-02EN

Specify the IP address basically in the form of xxx.xxx.xxx. xxx is a decimal number ranging from 0 to 255.

• cyclic (optional)

Displays the reply results after an ICMP (Echo Request) packet is transmitted at an interval of 1 second. If the cyclic option is specified, statistical information is displayed when all information has been gathered. If this option is specified, the icmp_seq sequence number, which is the transmission/reception count, is displayed. When the sequence number exceeds 65535, it is reset to 0. If this option is omitted, the command will send one ICMP packet.

• length < length > (optional)

ICMP data size. The ICMP header is not included. Specify a value ranging from 0 to 4500 bytes. If this option is omitted, the ICMP data size is 56 bytes. If 7 bytes or less is specified, the timer value is not displayed. If the specified length is in a range of 0 to 7, the time value indicating the response time is not displayed.

count<counter> (optional)

Number of times that packets are transmitted. Specify a value ranging from 0 to 65535. If this option is omitted or 0 is specified, an infinite value is assumed with transmission terminated when the [Ctrl]+[C] keys are pressed.

• timeout <seconds> (optional)

Reply monitoring time. Specify a value ranging from 0 to 600 seconds. If 0 is specified, an infinite value is assumed with a timeout occurring when the [Ctrl]+[C] keys are pressed or an ICMP (Echo Reply) packet is received. The default value is 20 seconds

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Executes the ping command specifying only the IP address

```
Switch# ping 192.168.2.2

192.168.2.2 is alive
Switch#
```

· Specifies [cyclic]

```
Switch# ping 192.168.2.2 cyclic
PING 192.168.2.2 (192.168.2.2): 56 octets data
64 octets from 192.168.2.2: icmp_seq=0 ttl=64 time=15.3 ms
64 octets from 192.168.2.2: icmp_seq=1 ttl=64 time=1.5 ms
64 octets from 192.168.2.2: icmp_seq=2 ttl=64 time=1.4 ms
^C (Press the [Ctrl]+[C] keys)

--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.5/2.8/5.6 ms
Switch#
```

· Specifies [length]

Specifies [length]0

8-204 C122-E003-02EN

· Specifies [count]

```
Switch# ping 200.10.2.15 cyclic length 100 count 3
PING 192.168.2.2 (192.168.2.2): 100 octets data
108 octets from 192.168.2.2: icmp_seq=0 ttl=64 time=2.0 ms
108 octets from 192.168.2.2: icmp_seq=1 ttl=64 time=18.7 ms
108 octets from 192.168.2.2: icmp_seq=2 ttl=64 time=1.6 ms
--- 192.168.2.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 1.6/7.4/18.7 ms
Switch#
```

· Specifies [timeout]

```
Switch# ping 192.168.2.2 timeout 5

192.168.2.2 is alive
Switch#
```

If no reply is received from the destination host after ping command execution

```
Switch# ping 192.168.2.3 timeout 5

Destination Host Unreachable
Switch#
```

If the destination network is unreachable after ping command execution

```
Switch# ping 192.168.2.3

Destination Net Unreachable

Switch#
```

(6) Error Messages

Destination Net Unreachable

Cause: The destination address is unreachable.

Action: Check the specified network.

Destination Host Unreachable

Cause: The destination host is unreachable.

Action: Check the destination host status.

parameter error

Cause: The specified parameter is invalid.

Action: Specify the correct parameter.

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-206 C122-E003-02EN

8.3.4.4 show arp

This command displays entries in the ARP table. The ARP aging time is random (5 to 20 minutes).

The local host address is not displayed because it is not registered in the ARP table.

(1) Synopsis

```
show arp
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

clear arp

(5) Examples

· Displays ARP entries

Displayed items:

IP Address, MAC Address, and Flag are displayed for each entry.

• IP Address: IP address of an ARP entry

• MAC Address: MAC address

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4.5 show ip

This command displays the IP host information and status and default gateway information

The same information is displayed by the following commands:

- show ip host (See Section 8.3.4.7, "show ip host.")
- show ip default-gateway (See Section 8.3.4.6, "show ip default-gateway.")
- show ip socket (See Section 8.3.4.8, "show ip socket.")
- show arp (See Section 8.3.4.4, "show arp.")

(1) Synopsis

show ip

(2) Options

None

(3) Command mode

user exec

enabled exec

8-208 C122-E003-02EN

(4) See also

```
show ip host
show ip default-gateway
show ip socket
show arp
```

(5) Examples

```
Switch# show ip
address mode:
               Static
IP address:
              10.1.0.54
netmask:
            255.255.255.0
VLAN ID:
            1
ip default gateway: 10.1.0.254
Int Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address Foreign Address
                                                   State
         0 192.168.0.10:23
                                192.168.0.1:1305 ESTABLISHED
tcp
       128 192.168.0.10:23
                                192.168.0.1:1741
tcp
                                                  ESTABLISHED
        0 192.168.0.10:1082
                                192.168.0.1:6000 ESTABLISHED
tcp
         0 192.168.0.10:1083
                                192.168.0.1:6000 ESTABLISHED
    0
tcp
         0 192.168.0.10:1084
                                192.168.0.1:6000
tcp
                                                  ESTABLISHED
         0 192.168.0.10:23
                                192.168.0.1:1740 ESTABLISHED
     0
tcp
IP Address
              Mac address
192.168.2.1
              00:E0:00:26:00:02
192.168.2.2
              00:90:FE:50:EC:88
192.168.2.20 01:02:03:03:02:01
Switch#
```

- IP host information and status: Same as the show ip host command
- Default gateway information: Same as the show ip default-gateway command
- Socket information and status: Same as the show ip socket command
- ARP table entries: Same as the show arp command

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4.6 show ip default-gateway

This command displays the default gateway that is set on the unit.

If ip default-gateway has not been specified, nothing is displayed (the command does not display "0.0.0.0").

(1) Synopsis

```
show ip default-gateway
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ip default-gateway

8-210 C122-E003-02EN

(5) Examples

· Displays the default gateway

```
Switch# show ip default-gateway ip default gateway: 10.1.0.254
Switch#
```

Displayed items:

ip default gateway: Default gateway

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4.7 show ip host

This command displays the IP host interface settings. If Dynamic is specified, the address information acquired by Bootp/DHCP is displayed. If no address is specified or address acquisition by Bootp/DHCP failed, "0.0.0.0" is displayed as the IP address netmask value.

(1) Synopsis

```
show ip host
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ip dhcp restart

(5) Examples

Displays the host interface settings and status

```
Switch# show ip host
address mode: Static
IP address: 10.1.0.54
netmask: 255.255.255.0
VLAN ID: 1
Switch#
```

Displayed items:

• address mode: Address setting mode (Static or Dynamic)

• IP address: IP address value

• Netmask: Netmask value

• VLAN ID: ID of the VLAN to which the host belongs

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

8-212 C122-E003-02EN

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.4.8 show ip socket

This command displays the socket information and status.

(1) Synopsis

```
show ip socket
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

None

(5) Examples

Displays the status of every socket

```
Switch# show ip socket
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address Foreign Address
                                                    State
tcp
             192.168.0.10:23
                                 192.168.0.1:1305 ESTABLISHED
          0
        128 192.168.0.10:23
                                 192.168.0.1:1741
                                                   ESTABLISHED
tcp
        0 192.168.0.10:1082
                                 192.168.0.1:6000 ESTABLISHED
tcp
      0
          0 192.168.0.10:1083
                                 192.168.0.1:6000
                                                   ESTABLISHED
tcp
      0
          0 192.168.0.10:1084
                                 192.168.0.1:6000
                                                   ESTABLISHED
tcp
      0
          0 192.168.0.10:23
                                 192.168.0.1:1740 ESTABLISHED
tcp
Switch#
```

Displayed items:

- Active Internet Socket: Title
- Proto: Protocol type
 - tcp: IPv4 TCP
 - udp: IPv4 UDP
- Recv-Q: Receive queue size (Unit: bytes) (When the size exceeds 999999 bytes, "999999" is displayed.)
- Send-Q: Transmit queue size (Unit: bytes) (When the size exceeds 999999 bytes, "999999" is displayed.)
- Local Address: Local address
- Foreign Address: Remote address
- State: Connected state (displayed only with TCP)
 - CLOSE: No connection
 - LISTEN: Waiting for a connection request from a remote host
 - SYN_SENT: Waiting for a reply confirmation after transmitting a connection request
 - SYN_RECEIVED: Waiting for a connection reply confirmation after transmitting synchronization for a connection request
 - ESTABLISHED: Ready for data transmission after establishing a connection
 - CLOSE WAIT: Waiting for disconnection from an application process
 - FIN_WAIT_1: Waiting for a disconnection request from a remote host or a reply confirmation to a transmitted disconnection request
 - FIN_WAIT_2: A TCP module is waiting for a disconnection request from a remote host.
 - CLOSING: Waiting for a disconnection request reply confirmation from a remote host
 - LAST_ACK: A TCP module is waiting for a reply confirmation to a disconnection request transmitted to a remote host.
 - TIME_WAIT: On standby while a remote host reliably receives a disconnection request reply confirmation

8-214 C122-E003-02EN

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.4.9 traceroute

This command examines the routes used to transfer packets to their destination. Transmission to broadcast addresses is not supported.

(1) Synopsis

```
traceroute <ip-address> [length <length>]
```

(2) Options

<ip-address>

Specifies the destination address.

Specify the IP address basically in the form of xxx.xxx.xxx (xxx is a decimal number ranging from 0 to 255).

• length < length > (optional)

Specifies the length of each packet to be transmitted (Unit: bytes).

You can specify a length between 40 and 1500 bytes. The packet length includes the IP header.

The default packet length is 40 bytes.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

· Specifies only the IP address

```
Switch#traceroute 192.168.4.2

traceroute to 192.168.2.2 (192.168.2.2), 30 hops max,

40 byte packets

1 192.168.2.2 (192.168.2.2) 3.297 ms 14.432 ms 1.720 ms

2 192.168.3.2 (192.168.3.2) 3.197 ms 14.332 ms 2.620 ms

3 192.168.4.2 (192.168.4.2) 3.097 ms 15.231 ms 2.720 ms

Switch#
```

· Displays packet lengths

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.2 (192.168.4.2), 30 hops max,
1500 byte packets
1 192.168.2.2 (192.168.2.2) 15.681 ms 3.430 ms 1.996 ms
2 192.168.3.2 (192.168.3.2) 16.681 ms 4.420 ms 2.116 ms
3 192.168.4.2 (192.168.4.2) 17.681 ms 4.450 ms 2.296 ms
Switch#
```

If a transmission timeout occurs

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.4 (192.168.4.2), 30 hops max,
1500 byte packets
1 * * *
2 * * *
3 * * *
```

8-216 C122-E003-02EN

· Forcibly ends if no reply is received from the destination host

```
Switch#traceroute 192.168.4.2 length 1500
traceroute to 192.168.4.4 (192.168.4.2), 30 hops max,
1500 byte packets
1 * * *
2 * * *
3 * * *
.
^C < Press the [Ctrl]+[C] keys
Switch#</pre>
```

 If notification that the destination host is unreachable is received from the adjacent gateway

```
Switch#traceroute 192.167.3.2
traceroute to 192.167.3.2 (192.167.3.2), 30 hops max,
40 byte packets
1 192.168.2.10 2993.150 ms !H 2998.817 ms !H 3000.131 ms !H
Switch#
```

 If notification that the network is unreachable is received from the adjacent gateway

```
Switch#traceroute 192.167.3.2
traceroute to 192.167.3.2 (192.167.3.2), 30 hops max,
40 byte packets
1 192.168.2.10 2993.150 ms !N 2998.817 ms !N 3000.131 ms !N
Switch#
```

(6) Error Messages

· Parameter error

Cause: The specified destination address is invalid.

Action: Check the destination address.

Destination Net Unreachable

Cause: An unreachable destination network address was specified.

Action: Check the destination address.

Check the network configuration.

· Destination Host Unreachable

Cause: An unreachable destination host address was specified.

Action: Check the destination address.

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-218 C122-E003-02EN

8.3.5 VLAN-related commands

8.3.5.1 show vlan

This command displays parameters of all VLANs defined on the switch or a specific VLAN (whose VLAN ID or name is specified) defined on the switch. If no port-channel port has been created, "none" is displayed for the corresponding interface. A VLAN can be displayed by the show vlan command only when the VLAN has been created and allocated by the switchport command.

(1) Synopsis

```
show vlan [id <vlan-id> | name <vlan-name>]
```

(2) Options

• [id <vlan-id>|name <vlan-name>] (optional)

If you specify id, specify vlan-id next. The range of values that can be specified for vlan-id is between 1 and 4094.

If you specify name, specify vlan-name next.

If this option is omitted, the command will display all configured VLANs.

(3) Command Mode

user exec

enabled exec

(4) See also

show interface switchport

(5) Examples

If all interfaces belong to ID 1

If GigabitEthernet 0/1 belongs to VLAN ID 10

If GigabitEthernet 0/1 belongs to VLAN ID 10 (a VLAN ID is specified)

```
Switch# show vlan id 10

ID Name interface
---- 0010 VLAN0010 GigabitEthernet 0/1

Switch#
```

8-220 C122-E003-02EN

If GigabitEthernet 0/1 belongs to VLAN ID 10 (a VLAN name is specified)

```
Switch# show vlan name VLAN0010

ID Name interface
---- 0010 VLAN0010 GigabitEthernet 0/1

Switch#
```

Displayed items:

• ID: VLAN ID (created VLAN ID)

VLAN ID 1 is always created by default during initialization of the unit. VLAN ID 1 cannot be deleted.

In the initial state, all interfaces belong to VLAN ID 1, but they can be specified to be removed from VLAN ID 1. The VLAN IDs range from 1 to 4094.

• Name: VLAN name, and the VLAN name corresponding to a VLAN ID

A VLAN name (up to 32 en-size alphanumeric characters) is specified when a VLAN is created. [default] is always ID 1.

• Interface: List of interfaces belonging to the corresponding VLAN ID

The displayed interface list does not include any port whose status is invalid, portchannel port (not created), or TenGigabitEhternet (not mounted).

The following interface types are available:

- GigabitEthernet 0/1-8
- IOU 0 0-7 1
- TenGigabitEthernet 1/1-2
- port-channel 1-7

(6) Error Messages

· vlan id doesn't exist.

Cause: A non-existent VLAN was specified.

Action: Specify an existing VLAN.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.6 Bridge-related commands

8.3.6.1 show bridge

This command displays the learning table contents.

The displayed contents include Dynamic entries and Static entries.

The command cannot be executed during execution of any of the following commands:

- clear bridge
- This command

Any change in the learning table is reflected in the displayed information after about 5 to 10 seconds.

(1) Synopsis

Displays the learning table contents

```
show bridge {[<interface-id>] | address <address>}
| [vlan <vlan-id>] | [status <status>] | [chip <chip no>]}
```

(2) Options

- <interface-id> (optional): Specifies the interface of the contents to be displayed.
 - GigabitEthernet 0/1-8
 - IO Unit 0 0-7 1
 - TenGigabitEthernet 1/1-2
 - port-channel 1-7

8-222 C122-E003-02EN

- port 1-33
- <address> (optional): Specifies the MAC address of the contents to be displayed.
- <vlan-id> (optional): Specifies the VLAN ID of the contents to be displayed (1 to 4094).
- <status> (optional): Specifies the Status of the contents to be displayed.
 - S: Static entry
 - D: Dynamic entry
- <chip no> (optional): Specifies the Chip No of the contents to be displayed (1 to 4).

If this parameter is omitted, all entry information is displayed.

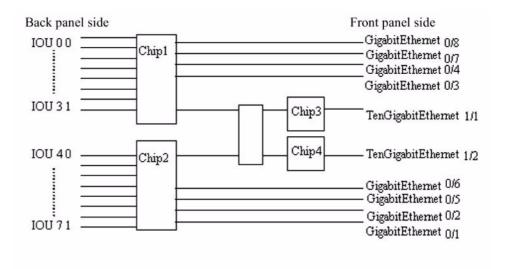


Figure 8.1 With a daughter

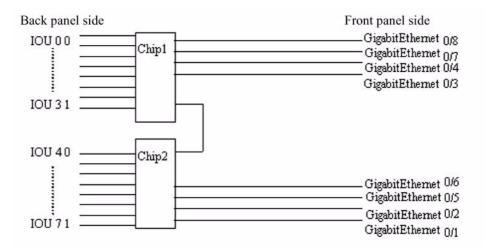


Figure 8.2 Without a daughter

(3) Command Mode

user exec

enabled exec

(4) See also

clear bridge

show bridge aging-time

8-224 C122-E003-02EN

(5) Examples

Switch# show bridge						
No.	Chip	Address	VLAN	Interface	Status	Action
1	1	00:00:00:01:22:22	1	ALL	S	discard
2	1	00:00:0E:D4:0C:B2	1	18 GigabitEthernet 0/2	D	forward
3	1	00:00:C0:01:01:02	1	19 port-channel 1	D	forward
4	1	00:00:C0:02:01:02	1	17 GigabitEthernet 0/1	D	forward
5	1	00:10:11:12:FF:FF	1	Self	S	forward
6	1	00:00:00:01:22:44	3	1 IO_Unit 0 0	S	forward
7	2	00:00:00:01:22:22	1	ALL	S	discard
8	2	00:00:0E:D4:0C:B2	1	18 GigabitEthernet 0/2	D	forward
9	2	00:00:C0:01:01:02	1	19 port-channel 1	D	forward
10	2	00:00:C0:02:01:02	1	17 GigabitEthernet 0/1	D	forward
11	2	00:10:11:12:FF:FF	1	Self	S	forward
12	2	00:00:00:01:22:44	3	1 IO_Unit 0 0	S	forward
Switch#						

Displayed items:

• No: Entry number

• Chip: Chip number

• Address: MAC address

• VLAN: VLAN ID that has been learned

• Interface: Interface name that has been learned

- [Self]: Local device entry

- [Multicast]: Multicast entry

- [ALL]: Entry with Discard setting

• Status: Entry

- [S]: Status Static entry

- [D]: Dynamic entry

• Action: Action taken when a destination frame is received

forward: Transferdiscard: Discard

(6) Error Messages

% Not implement daughter card.

Cause: An unimplemented interface or an unimplemented chip was specified.

Action: Check the unit mounting status.

· Command is already running.

Cause: One of the following commands is running.

show bridge/clear bridge

Action: Reenter the command after the current command exits.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again,

collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.6.2 show bridge summary

This command displays the number of entries registered in the learning table.

The displayed number of entries includes the MAC addresses used by the system.

Any change in the learning contents by hardware is reflected in the learning table contents after about 5 to 10 seconds.

(1) Synopsis

show bridge summary [chip <chip no>]

8-226 C122-E003-02EN

(2) Options

 <chip> (optional): Specifies the Chip No whose number of entries is to be displayed (1 to 4).

If this parameter is omitted, the total number of entries of all chips is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Displays the number of registered entries

```
Switch# show bridge summary
Registered station blocks : 7013
Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.6.3 show bridge aging-time

This command displays the holding time in the MAC address table.

(1) Synopsis

```
show bridge aging-time
```

(2) Options

None

(3) Command Mode

user exec enabled exec

(4) See also

```
mac address-table static
mac address-table aging-time
show bridge
clear bridge
```

(5) Examples

· Displays the holding time in the MAC address table

```
Switch# show bridge aging-time bridge aging-time : 300 sec
Switch#
```

Displayed items:

• bridge aging-time: Aging time (s)

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

8-228 C122-E003-02EN

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.6.4 clear bridge

This command deletes the learning table contents.

Only dynamic entries can be deleted; static entries cannot be deleted. To register or delete static entries, execute the mac address-table static command.

When this command has been entered, it cannot be interrupted by the [Ctrl]+[C] keys.

The command cannot be executed during execution of any of the following commands:

- show bridge
- This command

Any change in the learning contents by hardware is reflected in the learning table contents after about 5 to 10 seconds.

(1) Synopsis

clear bridge

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show bridge

show bridge aging-time

(5) Examples

Switch# clear bridge Switch#

(6) Error Messages

Command is already running.

Cause: One of the following commands is running.

show bridge/clear bridge

Action: Reenter the command after the current command exits.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-230 C122-E003-02EN

8.3.7 STP-related commands

8.3.7.1 show spanning-tree status

This command displays the STP status.

If this command is executed with an option specified, the command cannot be interrupted by the [Ctrl] + [c] keys.

(1) Synopsis

```
| show spanning-tree status [bridge | interface <interface-id>]
```

(2) Options

- bridge (optional): Specifies bridge information.
- interface <interface-id> (optional)

Specifies the interface whose STP status is to be displayed. If this parameter is omitted, all [bridge] and [interface] information is displayed.

- GigabitEthernet 0/1-8
- IOU 0 0-7 1
- TenGigabitEthernet 1/1-2
- port-channel 1-7

If no port-channel port has been created or no TenGigabitEthernet is mounted, settings of the corresponding interface are displayed.

While the STP configuration is being changed (topology change), some bridge information is not displayed. When the topology has been changed, all bridge information is displayed.

(3) Command Mode

user exec

enabled exec

(4) See also

None

(5) Examples

Executes show spanning-tree status bridge (with the STP setting state enabled)
 (Operation with a non-root bridge)

```
Switch# show spanning-tree status bridge
Bridge:
 status
                              enable
 Bridge Identifier:
                              32768
     priority
                              00:50:3e:8d:64:01
      address
 Root Bridge Identifier:
                              16384
     priority
                             00:60:70:4c:70:00
      address
 Root port
                             24 GigabitEthernet 0/8
  cost of root path
                              38
 Topology change:
      flag
                              not set
      detected flag
                             not set
 Times:
     hold
     topology change
                              24
     notification
                              2
     hello
                              14
     max age
      forward delay
                              10
 Configured Times:
     hello
                              2
     max age
                              20
     forward delay
                              15
  Timers:
     hello
                              ACTIVE
Switch#
```

Executes show spanning-tree status bridge (with the STP setting state disabled)

8-232 C122-E003-02EN

• Executes show spanning-tree status bridge (with the STP setting state enabled and the topology is being changed)

```
Switch# show spanning-tree status bridge
Bridge:
 status
                              enable
 Bridge Identifier:
     priority
                              32768
                              00:50:3e:8d:64:01
      address
 Root Bridge Identifier:
                              32768
     priority
                              00:50:3e:8d:64:01
      address
 Root port
 cost of root path
                              0
 Topology change:
      flag
                              set
Switch#
```

• Executes show spanning-tree status bridge (with the STP setting state enabled and topology convergence)

(Operation with a root bridge)

```
Switch# show spanning-tree status bridge
Bridge:
 status
                              enable
 Bridge Identifier:
                              32768
     priority
     address
                              00:50:3e:8d:64:01
 Root Bridge Identifier:
     priority
                              32768
                             00:50:3e:8d:64:01
     address
 Root port
  cost of root path
 Topology change:
      flag
                             not set
      detected flag
                              not set
 Times:
     hold
                              1
      topology change
                              35
      notification
                              2
     hello
                              2
                              20
     max age
                              15
     forward delay
  Configured Times:
     hello
                              20
     max age
      forward delay
                              15
  Timers:
     hello
                              ACTIVE
Switch#
```

Displayed items:

• status: STP setting status (whether STP is enabled or disabled)

Enable: STP enabledDisable: STP disabled

• Bridge Identifier: Unit identification information

- priority: Bridge priority (bridge priority of this unit) (0 to 65535)

- address: MAC address of this unit (delimited 6-byte hexadecimal value)

8-234 C122-E003-02EN

• Root Bridge Identifier: Root bridge information

This is information about the root bridge selected by STP.

If this unit is operating as the root bridge, information about the unit is displayed:

- priority: Bridge priority of the bridge unit defined as the root bridge (0 to 65535)
- address: MAC address of the bridge unit defined as the root bridge (delimited 6-byte hexadecimal value)
- Root port: Root port information

This is information about the interface selected as the root port.

The port with the lowest path cost among ports linked to the root bridge is selected as the root port.

Root port information is displayed in the form of "port number interface name":

- Port number: 0 to 33
- Interface name: Interface name displayed following selection from GigabitEthernet 0/1-8, IO_Unit 0 0-7 1, TenGigabitEthernet 1/1-2, and port-channel 1-7.

If this unit is operating as the root bridge, "0" is displayed as the port number and no interface name is displayed.

cost of root path: Path cost from this unit to the root bridge
 This path cost is calculated by totaling the link costs from the root port to the root bridge selected by STP. The cost ranges from 0 to 2147483647.
 If this unit is operating as the root bridge, "0" is displayed as the path cost.

- Topology change: Flag (set or not set)
 - flag: Topology change flag
 This flag is set when this unit receives a topology change message from the switch unit that constitutes STP and detects a topology change based on the message contents. The flag is cleared when the topology becomes stable.
 - detected flag: Topology change detection flag
 This flag is set when this unit detects a topology change.
 The flag is cleared when the topology becomes stable.
- Times: Timer value in use

This is the timer value used (executed) by this unit.

- hold: Config BPDU transmission holding time
 1 second (fixed)
- topology change: Topology change timer value
 This is the time between topology change detection and topology convergence:
 [max age] time + [forward delay] time

 notification: TCN BPDU transmission interval when a topology change is detected

This value is the same as the hello time.

- hello: Config BPDU transmission interval

 If this unit is operating as the root bridge, the setting of this unit is reflected.

 If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- max age: Maximum aging time
 If this unit is operating as the root bridge, the setting of this unit is reflected.
 If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- forward delay: Transfer delay time
 If this unit is operating as the root bridge, the setting of this unit is reflected.
 If this unit is operating as a non-root bridge, the value set in the Config BPDU frame reported from the root bridge is reflected.
- Configured Times: Settings based on the configuration definition
 - hello: Config BPDU transmission interval (1 to 10)
 - max age: Maximum aging time (6 to 40)
 - forward delay: Transfer delay time (6 to 40)
- Timers: Timer operating status flag (ACTIVE or INACTIVE)
 - hello: Hello time timer
 - "ACTIVE" is displayed when the hello time timer is operating, and "INACTIVE" is displayed when it is not operating. If this unit is operating as the root bridge, the hello time timer is operating because BPDU frames are transmitted from this unit.
 - If this unit is operating as a non-root bridge, the hello time timer is not operating because BPDU frames received from the root bridge are transferred. Therefore, "INACTIVE" is always displayed when this unit is operating as a non-root bridge.
- bpdu filter: BPDU filter setting status (ON/OFF)
 This item is displayed only if the STP status is Disable.
 - on: Enables the bpdu filter (enable: Transfer bpdu frames)
 - off: Disables the bpdu filter (disable: Do not transfer bpdu frames)

8-236 C122-E003-02EN

Example of output when show spanning-tree status interface has been executed

```
Switch# show spanning-tree status interface GigabitEthernet 0/1
Interface:
  17 GigabitEthernet 0/1
 Port status
                                  forwarding
 Port path cost
                                 19 (auto)
                                  64
 Port priority
                                  17.64
 Port Identifier
 Designated root:
                                  16384
     priority
      address
                                  00:60:70:4c:70:00
 Designated bridge:
     priority
                                  32768
      address
                                  00:e0:4f:ac:b0:00
 Designated port id
                                 17.64
 designated path cost
                                  19
 Timers:
      forward delay
                                  ACTIVE
      hold
                                  ACTIVE
Switch#
```

 Example of executing show spanning-tree status interface (with the STP setting state disabled)

```
Switch# show spanning-tree status interface GigabitEthernet 0/1
Interface:
  17 GigabitEthernet 0/1
 Port status
                                  disabled
 Port path cost
                                  4 (auto)
 Port priority
                                  128
 Port Identifier
                                 17.128
 Designated root:
     priority
                                  00:00:00:00:00:00
      address
 Designated bridge:
     priority
                                  00:00:00:00:00:00
      address
 Designated port id
                                 00.00
 designated path cost
 Timers:
      forward delay
                                 INACTIVE
     hold
                                  INACTIVE
Switch#
```

Displayed items:

• Interface: Interface information

17 GigabitEthernet 0/1: Port number interface name

- Port number: Port number (1 to 33).

- Interface name: Interface name displayed following selection from GigabitEthernet 0/1-8, IO_Unit 0 0-7 1, TenGigabitEthernet 1/1-2, port-channel 1-7, and none.

If no port-channel port has been created or no TenGigabitEthernet is mounted, "none" is displayed for the interface name.

• Port status: Port status

- listening: Listening status Receiving BPDU frames

- learning: Learning status
Preparing to transfer data traffic

- forwarding: Forwarding status Ready to transfer data traffic

blocking: Blocking status
 Data traffic blocked

- disable: Disabled

STP not managed (STP disabled)

	BPDU reception	BPDU transmission	Address learning	Frame transfer
disable	N	N	Y	Y
blocking	Y	N	N	N
listening	Y	Y	N	N
learning	Y	Y	Y	N
forwarding	Y	Y	Y	Y

• Port path cost: Port path cost value

The port path cost value ranges from 0 to 65535.

xx(auto) indicates the path cost value, which is calculated automatically and depends on the link speed.

auto: The calculated master-port link speed minus 1 is set for the 10Mbps-100, 100Mbps-19, 1Gbpd-4, 10Gbpd-2, and port-channel ports.

• Port priority: Port priority
The port priority ranges from 0 to 255.

8-238 C122-E003-02EN

• Port Identifier: Port identifier

The port identifier is a combination of the port number and port priority.

The port identifier is used as follows:

Port_number.port_priority

• Designated root: Root bridge information

This is information about the root bridge selected by STP.

If this unit is operating as the root bridge, information about the unit is displayed:

- priority: Priority

- address: MAC address

• Designated bridge: Designated bridge information

This is information about the designated bridge selected by STP.

If this unit is operating as the designated bridge, information about the unit is displayed:

- priority: Priority

- address: MAC address

- Designated port id: Designated port ID
- designated path cost: Designated path cost (If this is not for the designated port, it is the Config BPDU designated path cost.)
- Timers: Flag indicating whether the timer is operating (ACTIVE or INACTIVE)
 - forward delay: Forward delay timer

- hold: Hold timer

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.7.2 show spanning-tree statistics

This command displays STP statistical information.

(1) Synopsis

show spanning-tree statistics [bridge | interface <interface-id>]

(2) Options

- bridge (optional)
 - Displays unit statistical information.
- interface <interface-id> (optional)

Displays interface statistical information.

This option specifies the interface whose STP statistical information is to be displayed:

- GigabitEthenet 0/1-8
- IO Unit 0 0-7 1
- TenGigabitEthernet 1/1-2
- port-channel 1-7

If these options are omitted, all unit and interface statistical information is displayed.

If only <interface-id> is omitted, all interface statistical information is displayed.

The clear spanning-tree command deletes all statistical information displayed by this command.

(3) Command Mode

user exec

enabled exec

(4) See also

clear spanning-tree

8-240 C122-E003-02EN

(5) Examples

Displays output of show spanning-tree statistics bridge

Unit statistical information

- topology changes: Topology change count
 The number of times that the topology was changed is displayed.
- last change occurred: elapsed time after the last topology change
 The elapsed time since the last topology change is displayed.
 If the clock time of this unit is changed after a change in the topology, the displayed elapsed time may be incorrect. After the clock time is corrected, the correct value is displayed again when the topology is changed.
- forwarding-db deleted: Learning table deletion count
 The number of times that the learning table was deleted is displayed.
- changed to root bridge: Root bridge count
 The number of changes into the root bridge is displayed.
- changed to not root bridge: Non-root bridge count
 The number of changes into a non-root bridge is displayed.

Displays output of show spanning-tree statistics interface

```
# show spanning-tree statistics interface GigabitEthernet 0/1
Interface:
17 GigabitEthernet 0/1
changed to root port
                                         1
changed to designated port
                                         0
 changed to forwarding state
                                         1
message age timer timeout
port request enable
                                         1
port request disable
                                         \cap
Config BPDU:
                                         3
   sent
                                         3417
   received
   discarded
   TC flag ON Config BPDU received
TCN BPDU:
   sent
                                         3
                                         3417
   received
   discarded
                                         0
BPDU discarded by system error
                                         0
 Trigger for changing to root bridge:
   message age timeout
                                         0
   port down
Trigger for changing to not root bridge:
   new Config BPDU received
```

Interface statistical information

• Interface information:

The port number and interface name are displayed:

- The port number ranges from 1 to 33.
- Interface name

The interface name is displayed following selection from GigabitEthernet 0/1-8, IOU 0 0-7 1, TenGigabitEthernet 1/1-2, port-channel 1-7, and none.

If no port-channel port has been created or no TenGigabitEthernet is mounted, "none" is displayed for the interface name.

- changed to root port: Root port count
 The number of changes into the root port is displayed.
- changed to designated port: Designated port count
 The number of changes into the designated port is displayed.

8-242 C122-E003-02EN

- changed to forwarding state: Forwarding count
 The number of changes into the forwarding state is displayed.
- message age timer timeout: Message age timer timeout count
 The number of times that the message age timer timeout occurred is displayed.
- port request enable: Port-up count
 The number of times that port-up occurred is displayed.
- port request disable: Port-down count
 The number of times that port-down occurred is displayed.
- Config BPDU: Config BPDU statistical information
 Statistical information about the configuration message (Config BPDU) is displayed:
 - sent: Transmission count
 - received: Reception count
 - discarded: Reception discard count
 - TC flag ON Config BPDU received: Count of Config BPDU reception with the topology change flag ON
- TCN BPDU: TCN BPDU statistical information
 Topology change message statistical information.
 Statistical information about the topology change message (TCN BPDU) is displayed:
 - sent: Transmission count
 - received: Reception count
 - discarded: Reception discard count
- BPDU discarded by system error: Count of BPDU discard events due to a system error

The number of times that the BPDU message was discarded because of a system error is displayed.

- Trigger for changing to root bridge: Trigger for a change into the root bridge
 - message age timeout: Message age timer timeout
 The number of times that a message age timer timeout was the trigger is displayed.
 - port down: Port-down
 The number of times that port-down was the trigger is displayed.
- Trigger for changing to not root bridge: Trigger for a change into a non-root bridge
 - new Config BPDU received: New Config BPDU reception
 The number of times that reception of a new configuration message was the trigger is displayed.

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.7.3 clear spanning-tree

This command clears statistical STP information.

(1) Synopsis

clear spanning-tree

(2) Options

None

This command clears all contents displayed by the show spanning-tree statistics command.

(3) Command mode

enabled exec

(4) See also

show spanning-tree statistics

8-244 C122-E003-02EN

(5) Examples

```
Switch# clear spanning-tree
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.8 Log-related commands

8.3.8.1 clear logging error

This command deletes the stored error log contents.

(1) Synopsis

Deletes the stored error log contents

```
clear logging error
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging error

(5) Examples

· Deletes all the stored error log contents

```
Switch# clear logging error
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.2 clear logging line

This command deletes the stored line log contents.

(1) Synopsis

```
clear logging line
```

(2) Options

None

8-246 C122-E003-02EN

(3) Command mode

enabled exec

(4) See also

show logging line

(5) Examples

· Deletes all the stored line log contents

```
Switch# clear logging line
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.3 clear logging message

This command deletes the stored message log contents.

(1) Synopsis

```
clear logging message
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging message

(5) Examples

· Deletes all the stored message log contents

```
Switch# clear logging message
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

8-248 C122-E003-02EN

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.4 clear logging trap

This command deletes the stored trap log contents.

(1) Synopsis

```
clear logging trap
```

(2) Options

None

(3) Command mode

enabled exec

(4) See also

show logging trap

(5) Examples

Deletes all the stored trap log contents

```
Switch# clear logging trap
Are you sure? [y/n]:y
Now perform...
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.5 show logging error

This command displays the stored error log contents.

(1) Synopsis

```
show logging error [detail] [tail <number>]
```

(2) Options

- detail: Displays log details.
- tail: Displays the specified number of last log items.
 - <number>: Specifies the number of log items to be displayed (1 to 62).

(3) Command mode

enabled exec

(4) See also

clear logging error

(5) Examples

Displays all the stored error log contents

8-250 C122-E003-02EN

Displayed items:

• seq: Error log sequence number (1 to the current maximum value)

• date: Log collection date and time

message: Messagecode: Error code

• (ver/make): Executable file version number and creation date

Displays all error log details

```
Switch# show logging error detail
seq
     date (ver/make)
                       code message
00001 2001-01-01 00:15:05 eeee
    (V01L01-A09 2005-01-11 18:12:13)
 V1 Rst cd=0x02 [Err code=eeee Err info=0000]
 pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
 ccr:84022822 tra fact:00000800
  r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
  r4:00000014 r5:c714bcbc r6:c677f604 r7:caf107cf
  r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
 r12:24022822 r13:100b4714 r14:00000000 r15:00000000
 r16:00000000 r17:00000000 r18:00000000 r19:00000000
 r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
 r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
 r28:00000014 r29:ffffffef r30:0000000 r31:c714bcbc
 :00000000 :000000000 :000000000
    :00000000 :0700a002 :0700a002 :0700a002
    :00000000 :eec00004 :0c000000
    :ff801c18 :00000000 :00000000
00002 2001-01-01 00:03:17 eeee
    (V01L01-A09 2005-01-11 18:12:13)
 V1 Rst cd=0x02 [Err code=eeee Err info=0000]
 pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
 ccr:84022822 tra fact:00000800
  r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
  r4:00000014 r5:c714bcbc r6:c677f804 r7:caf107cf
  r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
 r12:24022822 r13:100b4714 r14:00000000 r15:00000000
 r16:00000000 r17:00000000 r18:00000000 r19:00000000
 r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
 r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
 r28:00000014 r29:ffffffef r30:00000000 r31:c714bcbc
 :00000000 :000000000 :000000000
    :00000000 :0700a002 :0700a002 :0700a002
    :00000000 :eec00004 :0c000000
    :ff801c18 :00000000 :00000000
Switch#
```

8-252 C122-E003-02EN

Displays details about the latest error log item

```
Switch# show logging error detail tail 1
     date (ver/make) code
                               message
00002 2001-01-01 00:03:17 eeee
    (V01L01-A09 2005-01-11 18:12:13)
 V1 Rst cd=0x02 [Err code=eeee Err info=0000]
  pc:cace4550 msr:00009030 ctr:c000f19c lr:cace9658
 ccr:84022822 tra fact:00000800
  r0:00000000 r1:c714bc50 r2:c7148000 r3:00000000
  r4:00000014 r5:c714bcbc r6:c677f804 r7:caf107cf
  r8:00000051 r9:000001e0 r10:ca2b900c r11:00000000
 r12:24022822 r13:100b4714 r14:00000000 r15:00000000
 r16:00000000 r17:00000000 r18:00000000 r19:00000000
 r20:00009032 r21:0714bf30 r22:00000000 r23:c0002bb4
 r24:c0002920 r25:00000001 r26:c714bd94 r27:00000014
 r28:00000014 r29:ffffffef r30:00000000 r31:c714bcbc
 :00000000 :000000000 :000000000
    :00000000 :0700a002 :0700a002 :0700a002
    :00000000 :eec00004 :0c000000
    :ff801c18 :00000000 :00000000
Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

Management data error.

Cause: User log management data is destroyed.

Action: Execute clear logging error.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.6 show logging line

This command displays the stored line log contents.

(1) Synopsis

```
show logging line [<interface-id>] [tail <number>]
```

(2) Options

• <interface-id>

Displays the line log of the specified interface. The following interfaces can be specified:

- IOU 0 0-7 1
- GigabitEthernet0/1-8
- TenGigabitEthernet1/1-2
- port 1-35

If this parameter is omitted, the line log of all interfaces are displayed.

- tail: Displays the specified number of last log items.
 - number: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging line

8-254 C122-E003-02EN

(5) Examples

Displays the line log of all ports

Displayed items:

• seq: Message log sequence number

• date: Collection date and time

• host: Host name

• interface name: Interface name

message: Message

Displays the GigabitEthernet0/1 line log

Displays the latest two line log items

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.7 show logging message

This command displays the stored message log contents.

(1) Synopsis

```
show logging message [tail <number>]
```

(2) Options

- tail: Displays the specified number of last log items.
 - <number>: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging message

8-256 C122-E003-02EN

(5) Examples

Displays all the message log contents

Displayed items:

• seq: Message log sequence number

• date: Collection date and time

hostname: Host namemessage: Message

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.8 show logging trap

This command displays the stored trap log contents.

(1) Synopsis

```
show logging trap [tail <number>]
```

(2) Options

- tail: Displays the specified number of last log items.
 - number: Specifies the number of log items to be displayed (1 to 1023).

(3) Command mode

enabled exec

(4) See also

clear logging trap

(5) Examples

Displays all the message log contents

```
      switch#show logging trap

      seq date
      hostname logid code messages

      0001 2001-01-01 00:00:32 switch : 8500 0001 LinkUp <1>

      0002 2001-01-01 00:00:32 switch : 8500 0001 LinkUp <2>

      0003 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <3>

      0004 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <4>

      0005 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <5>

      0006 2001-01-01 00:00:33 switch : 8500 0001 LinkUp <6>
```

· Displays the last message log item

```
switch#show logging trap tail 1
seq date hostname logid code messages
---- 0474 2004-12-27 17:45:16 switch: 8400 0003 TopologyChange
switch#
```

Displayed items:

8-258 C122-E003-02EN

• seq: Trap log sequence number

• date: Collection date and time

hostname: Host namelogid: Trap issuer ID

• code: Trap issuance status

- 0001: Discarded because a trap occurred before coldStart/warmStart was issued. Alternatively, this is the status of the first coldStart/warmStart that occurred after a reboot.

- 0002: Transmitted trap

- 0003: Trap that failed to be transmitted

• message: Message

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.8.9 show logging

This command displays message log settings.

(1) Synopsis

show logging

(2) Options

None

(3) Command mode

enabled exec

(4) See also

logging on

logging level

logging host

(5) Examples

· Displays message log settings

```
switch#show logging
mlog logging : enable
mlog logging level : 3(error)
transfer host : 192.168.100.100
switch#
```

Displayed items:

- mlog logging: mlog enabled or disabled
- mlog logging level: Level of mlog collection
- transfer host: IP address of the mlog transfer destination host

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

8-260 C122-E003-02EN

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.9 Filtering/QoS-related commands

8.3.9.1 show remote-access

This command displays the conditions of a host or network to which a remote connection can be established.

(1) Synopsis

```
show remote-access
```

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

remote-access

(5) Examples

```
Switch# show remote-access
telnet:192.168.100.0/255.255.255.0
telnet:192.168.0.190
all:192.168.1.100
ssh:192.168.120.0/255.255.255.0
telnet:all
Switch#
```

Displayed items:

• protocol: Protocol for which the conditions are set

- IP Address: IP address or the network address to which a connection can be established
- Netmask: Subnet mask when a network address is specified in an IP address

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.9.2 show storm-control

This command displays information on broadcast/multicast/DLF storm control in units and interfaces (ports).

If the parameter is omitted, information about all interfaces is displayed.

(1) Synopsis

```
show storm-control [<interface-id>]
```

(2) Options

- <interface-id> (optional): Specifies the interface whose information is to be displayed.
 - IO Unit 0 0-7 1
 - GigabitEthernet 0/1-8
 - port 1-24

If this parameter is omitted, information about all interfaces is displayed.

8-262 C122-E003-02EN

(3) Command mode

user exec

enabled exec

(4) See also

storm-control

(5) Examples

Displays the storm control setting of the specified interface

Displayed items:

• Port: Port

• Interface: Interface ID

- Broadcast: Threshold (pkts/sec) of broadcast storm control. If disabled, "Disable" is displayed.
- Multicast: Threshold (pkts/sec) of multicast storm control. If disabled, "Disable" is displayed.
- DLF: Threshold (pkts/sec) of dlf storm control. If disabled, "Disable" is displayed.
- Displays setting information about all interfaces

Switch# show storm-control					
Port	Interface		Broadcast	Multicast	DLF
1	IO_Unit 0 0		Disable	Disable	Disable
			:		
16	IO_Unit 7 1		Disable	Disable	Disable
17	GigabitEthernet	0/1	500	Disable	Disable
18	GigabitEthernet	0/2	Disable	Disable	500
19	GigabitEthernet	0/3	Disable	123	Disable
20	GigabitEthernet	0/4	Disable	Disable	Disable
			:		
24	GigabitEthernet	0/8	Disable	Disable	Disable
Switch#					

(6) Error Messages

· parameter error.

Cause: The specified parameter is invalid.

Action: Specify a correct parameter.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.9.3 show wrr-queue cos-map

This command displays mapping of the Class of Service (CoS: Service Class) priority queue.

(1) Synopsis

show wrr-queue cos-map

(2) Options

None

(3) Command mode

user exec

enabled exec

8-264 C122-E003-02EN

(4) See also

wrr-queue cos-map

(5) Examples

Displays output of show wrr-queue cos-map

```
Switch# show wrr-queue cos-map
CoS Value : 0 1 2 3 4 5 6 7
Priority Queue : 0 0 1 1 2 2 3 3
Switch#
```

CoS Value

CoS value (always in a range of 0 to 7)

• Priority Queue

Queue ID of the CoS priority queue. This setting (range of 0 to 3) is for a CoS value (range of 0 to 7).

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.10 Statistics management commands

8.3.10.1 show ether statistics

This command displays statistical information about an interface.

If there is no daughter, internal ports C to H are not displayed.

(1) Synopsis

show ether statistics [<interface-id>]

(2) Options

- <interface-id> (optional): Specifies the interface.
 - IOU 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - port-channel 1-7
 - InternalPort 1-8
 - port 1-43

If this parameter is omitted, statistical information about all interfaces is displayed.

If the InternalPort 1-8 option is specified, statistical information on internal ports at the locations shown below is displayed.

8-266 C122-E003-02EN

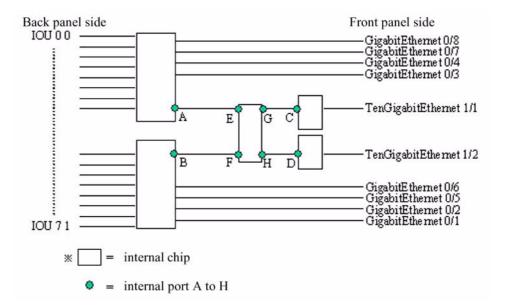


Figure 8.3 With a daughter

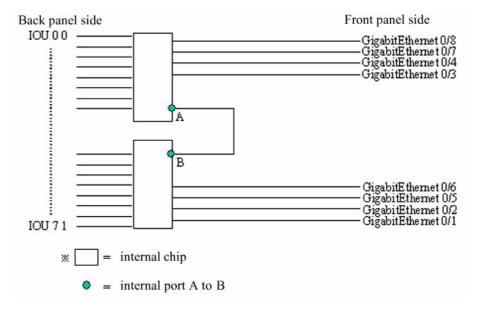


Figure 8.4 Without a daughter

Table 8.45 Port and displayed statistical information

Option	Displayed statistical information		
InternalPort 1	A		
InternalPort 2	В		
InternalPort 3	С		
InternalPort 4	D		
InternalPort 5	Е		
InternalPort 6	F		
InternalPort 7	G		
InternalPort 8	Н		

(3) Command mode

user exec

enabled exec

(4) See also

clear ether statistics

8-268 C122-E003-02EN

(5) Examples

· Specifies GigabitEthernet

```
Switch# show ether statistics GigabitEthernet 0/1
Ethernet statistics.
Time: 2004.05.31.mon.13:58:47
17 GigabitEthernet 0/1
xxxxxxxxxxxxxxxxx Transmit and Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 512-1023 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 1519-1522 (or 1519-1526 if
stack Link) Byte Good VLAN Frame Counter
xxxxxxxxxxxxxxxx Transmit and Receive 1522-2047 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 2048-4095 Byte Frame Counter
xxxxxxxxxxxxxxxx Transmit and Receive 4096-9216 Byte Frame Counter
xxxxxxxxxxxxxxxxx Receive Frame Counter
xxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxx Receive Multicast Frame Counter
xxxxxxxxxxxxxxxxxx Receive Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxx Receive FCS Error Frame Counter
xxxxxxxxxxxxxxxxxx Receive Control Frame Counter
xxxxxxxxxxxxxxxxx Receive Pause Frame Counter
xxxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxx Receive Alignment Error Frame Counter
xxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxx Receive Code Error Counter
xxxxxxxxxxxxxxxxx Receive False Carrier Counter
xxxxxxxxxxxxxxxxxx Receive Oversize Frame Counter
xxxxxxxxxxxxxxxxxx Receive Jabber Frame Counter
xxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxx Number of multicast packets dropped in the mac
domain by ingress
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive Discard
Packet Counter
xxxxxxxxxxxxxxxxx Packets dropped by FFP Counter
xxxxxxxxxxxxxxxxxx PortInDiscard Counter
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 04
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 05
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 06
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 07
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 08
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 09
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 10
```

```
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 11
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 12
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 13
xxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 14
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter For All Packets
xxxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter
xxxxxxxxxxxxxxxxxxxxxx Transmit Jabber Counter
xxxxxxxxxxxxxxxxx Transmit FCS Error Counter
xxxxxxxxxxxxxxxxxx Transmit Control Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxxxxxx Transmit Single Deferral Frame Counter
xxxxxxxxxxxxxxxxx Transmit Multiple Deferral Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Single Collision Frame Counter
xxxxxxxxxxxxxxxxxx Transmit Multiple Collision Frame Counter
xxxxxxxxxxxxxxxxx Transmit Late Collision Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Excessive Collision Frame Counter
xxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxx Transmit Total Collision Counter
xxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxx Transmit Tagged VLAN Packet Counter
xxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
xxxxxxxxxxxxxxxxxxx Transmit Aborted Packet Counter
xxxxxxxxxxxxxxxxxx Number of multicast packets dropped in the egress
xxxxxxxxxxxxxxxxxx Number of packets dropped by egress because CFI set
and (vlan tag removed or ipmc)
xxxxxxxxxxxxxxxxxx Transmit Cell Error Counter
Switch#
```

Displayed items:

- Transmit and Receive 64 Byte Frame Counter: Number of transmitted/received frames whose frame length is 64 bytes
- Transmit and Receive 65-127 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 65 to 127 bytes
- Transmit and Receive 128-255 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 128 to 255 bytes
- Transmit and Receive 256-511 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 256 to 511 bytes
- Transmit and Receive 512-1023 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 512 to 1023 bytes
- Transmit and Receive 1024-1518 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 1024 to 1518 bytes

8-270 C122-E003-02EN

- Transmit and Receive 1519-1522 (or 1519-1526 if stack Link) Byte Good VLAN Frame Counter: Number of transmitted/received VLAN frames whose length ranges from 1519 to 1522 bytes
- Transmit and Receive 1522-2047 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 1522 to 2047 bytes
- Transmit and Receive 2048-4095 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 2048 to 4095 bytes
- Transmit and Receive 4096-9216 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 4096 to 9216 bytes
- Receive Frame Counter: Number of received frames
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Byte Counter: Number of received bytes
- Receive Multicast Frame Counter: Number of received multicast frames
- Receive Broadcast Frame Counter: Number of received broadcast frames
- Receive FCS Error Frame Counter: Number of received FCS error frames
- Receive Control Frame Counter: Number of received control frames
- Receive Pause Frame Counter: Number of received pause frames
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Alignment Error Frame Counter: Number of received alignment error frames
- Receive Length Out of Range Frame Counter: Number of received length-out-ofrange frames
- Receive Code Error Counter: Number of received code errors
- Receive False Carrier Counter: Number of received false carriers
- Receive Oversize Frame Counter: Number of received oversize frames
- Receive Jabber Frame Counter: Number of received Jabber frames
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMC packets
- Number of multicast packets dropped in the mac domain by ingress: Number of discarded multicast packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Receive Unicast Counter: Number of received unicasts
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Packets dropped by FFP Counter: Number of packets discarded by FFP

- PortInDiscard Counter: Number of PortInDiscards
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 0 0) (Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 4 0)
```

 Receive Discard Packet Counter 02: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 0 1) (Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 4 1)
```

 Receive Discard Packet Counter 03: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 1 0) (Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO_Unit 1 0)
```

 Receive Discard Packet Counter 04: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 1 1) (Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 5 1)
```

 Receive Discard Packet Counter 05: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 2 0) (Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO_Unit 6 0)
```

 Receive Discard Packet Counter 06: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 2 1) (Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO_Unit 6 1)
```

 Receive Discard Packet Counter 07: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 3 0) (Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO_Unit 7 0)
```

 Receive Discard Packet Counter 08: Number of received and discarded packets during transfer

8-272 C122-E003-02EN

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: IO_Unit 3 1) (Destination for IO Unit 4 0-IO Unit 7 1; GigabitEthernet0/1, 2, 5, 6: IO Unit 7 1)
```

 Receive Discard Packet Counter 09: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/8)
```

```
(Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/6)
```

 Receive Discard Packet Counter 10: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/4)
```

```
(Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/2)
```

 Receive Discard Packet Counter 11: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/7)
```

```
(Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/5)
```

 Receive Discard Packet Counter 12: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: GigabitEthernet0/3)
```

```
(Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: GigabitEthernet0/1)
```

 Receive Discard Packet Counter 13: Number of received and discarded packets during transfer

```
(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: InternalPort 1)
```

```
(Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: InternalPort 2)
```

 Receive Discard Packet Counter 14: Number of received and discarded packets during transfer

(Destination for IO_Unit 0 0-IO_Unit 3 1; GigabitEthernet0/3, 4, 7, 8: CPU) (Destination for IO_Unit 4 0-IO_Unit 7 1; GigabitEthernet0/1, 2, 5, 6: CPU)

- Receive Discard Packet Counter For All Packets: Number of received packets discarded because the destination was missing
- Transmit Frame Counter: Number of transmitted frames
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit Jabber Counter: Number of transmitted Jabbers
- Transmit FCS Error Counter: Number of transmitted FCS errors
- Transmit Control Frame Counter: Number of control frames
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Single Deferral Frame Counter: Number of transmitted single deferral frames
- Transmit Multiple Deferral Frame Counter: Number of transmitted multicast deferral frames
- Transmit Single Collision Frame Counter: Number of transmitted single collision frames
- Transmit Multiple Collision Frame Counter: Number of transmitted multicast collision frames
- Transmit Late Collision Frame Counter: Number of transmitted late collision frames
- Transmit Excessive Collision Frame Counter: Number of transmitted excessive collision frames
- Transmit Fragment Counter: Number of transmitted frames whose length is less than 64 bytes
- Transmit Total Collision Counter: Number of total transmission collisions
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Tagged VLAN Packet Counter: Number of transmitted tagged VLAN packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Transmit Aborted Packet Counter: Number of transmission aborted packets

8-274 C122-E003-02EN

- Number of multicast packets dropped in the egress: Number of transmitted and discarded multicast packets
- Number of packets dropped by egress because CFI set and (vlan tag removed or ipmc): Number of discarded CFI packets
- Transmit Cell Error Counter: Number of transmitted cell errors

TenGigabitEthernet

```
Switch# show ether statistics TenGigabitEthernet 1/1
Ethernet statistics.
Time: 2004.05.31.mon.15:34:27
25 TenGigabitEthernet 1/1
xxxxxxxxxxxxxxxxx Receive 64 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 65-127 byte packet counter
xxxxxxxxxxxxxxxxx Receive 128-255 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 256-511 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxx Receive 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxx Receive 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Packet
xxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxxxx Packets dropped by FFP Counter
```

```
xxxxxxxxxxxxxxxxx Port In Discard Counter
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxx Receive Discard Packet Counter For All Packets
xxxxxxxxxxxxxxxxxxx Transmit 64 byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit 65-127 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 128-255 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 256-511 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 1523-txMaxSize byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit Packet Counter
xxxxxxxxxxxxxxxxxxxxx Transmit PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxx Transmit Multicast Packet Counter
xxxxxxxxxxxxxxxxxxx Transmit Broadcast Packet Counter
xxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Tagged VLAN Packet Counter
xxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
xxxxxxxxxxxxxxxxxxxxxx Transmit Aborted Packet Counter
xxxxxxxxxxxxxxxxx Number of multicast packets dropped in the
egress
xxxxxxxxxxxxxxxxxx Number of packets dropped by egress because
CFI set and (vlan tag rem oved or ipmc)
xxxxxxxxxxxxxxxxxxx Packets dropped for this port
Switch#
```

Displayed items:

- Receive 64 byte packet counter: Number of received packets whose frame length is 64 bytes
- Receive 65-127 byte packet counter: Number of received packets whose length ranges from 65 to 127 bytes
- Receive 128-255 byte packet counter: Number of received packets whose length ranges from 128 to 255 bytes
- Receive 256-511 byte packet counter: Number of received packets whose length ranges from 256 to 511 bytes

8-276 C122-E003-02EN

- Receive 512-1023 byte packet counter: Number of received packets whose length ranges from 512 to 1023 bytes
- Receive 1024-2047 byte packet counter: Number of received packets whose length ranges from 1024 to 2047 bytes
- Receive 2048-4095 byte packet counter: Number of received packets whose length ranges from 2048 to 4095 bytes
- Receive 4096-8191 byte packet counter: Number of received packets whose length ranges from 4096 to 8191 bytes
- Receive 8192-16383 byte packet counter: Number of received packets whose length ranges from 8192 to 16383 bytes
- Receive 1523-rxMaxSize byte packet counter: Number of received packets whose length is 1523 bytes
- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet: Number of discarded multicast packets
- Receive Multicast Packet Counter: Number of received multicast packets
- Receive Broadcast Packet Counter: Number of received broadcast packets
- Receive Control Packet Counter: Number of received control packets
- Receive PAUSE Packet Counter: Number of received pause packets
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Packet Counter: Number of received oversize packets
- Receive Length Out of Range Frame Counter: Number of received length-out-ofrange frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMC packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Receive Unicast Counter: Number of received unicasts

- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Packets dropped by FFP Counter: Number of packets discarded by FFP
- Port In Discard Counter: Number of PortInDiscards
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: TenGigabitEthernet1/1)

(Destination for TenGigabitEthernet1/2: TenGigabitEthernet1/2)

 Receive Discard Packet Counter 02: Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: InternalPort 3)

(Destination for TenGigabitEthernet1/2: InternalPort 4)

• Receive Discard Packet Counter 03

Number of received and discarded packets during transfer

(Destination for TenGigabitEthernet1/1: CPU)

(Destination for TenGigabitEthernet1/2: CPU)

- Receive Discard Packet Counter For All Packets: Number of received packets discarded because the destination was missing
- Transmit 64 byte packet counter: Number of transmitted packets whose frame length is 64 bytes
- Transmit 65-127 byte packet counter: Number of transmitted frames whose length ranges from 65 to 127 bytes
- Transmit 128-255 byte packet counter: Number of transmitted frames whose length ranges from 128 to 255 bytes
- Transmit 256-511 byte packet counter: Number of transmitted frames whose length ranges from 256 to 511 bytes
- Transmit 512-1023 byte packet counter: Number of transmitted frames whose length ranges from 512 to 1023 bytes
- Transmit 1024-2047 byte packet counter: Number of transmitted frames whose length ranges from 1024 to 2047 bytes
- Transmit 2048-4095 byte packet counter: Number of transmitted frames whose length ranges from 2048 to 4095 bytes
- Transmit 4096-8191 byte packet counter: Number of transmitted frames whose length ranges from 4096 to 8191 bytes

8-278 C122-E003-02EN

- Transmit 8192-16383 byte packet counter: Number of transmitted frames whose length ranges from 8192 to 16383 bytes
- Transmit 1523-txMaxSize byte packet counter: Number of transmitted frames whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Transmit Packet Counter: Number of transmitted packets
- Transmit PAUSE Packet Counter: Number of transmitted pause control frames
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Packet Counter: Number of transmitted multicast frames
- Transmit Broadcast Packet Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted frames whose length is less than 72 bytes
- Transmit Oversize Packet Counter: Number of transmitted oversize frames
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Tagged VLAN Packet Counter: Number of transmitted tagged VLAN packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Transmit Aborted Packet Counter: Number of transmission aborted packets
- Number of multicast packets dropped in the egress: Number of transmitted and discarded multicast packets
- Number of packets dropped by egress because CFI set and (vlan tag removed or ipmc): Number of discarded CFI packets
- Packets dropped for this port: Number of transmitted cell errors

Specifies InternalPort 1 (similar for InternalPort 2)

```
Switch# show ether statistics InternalPort 1
Ethernet statistics.
Time: 2004.05.31.mon.13:58:47
36 InternalPort 1
xxxxxxxxxxxxxxxxxxx Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxxx Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxxx Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxxx Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxxx Receive 512-1023 Byte Frame Counter
xxxxxxxxxxxxxxxxx Receive 1024-1522 Byte Frame Counter
xxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize Byte Frame Counter
xxxxxxxxxxxxxxxxx Receive Frame Counter
xxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Frame Counter
xxxxxxxxxxxxxxxxxx Receive Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxxxx Receive Broadcast Frame Counter
xxxxxxxxxxxxxxxxxx Receive Control Frame Counter
xxxxxxxxxxxxxxxxxx Receive Pause Frame Counter
xxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxx Receive Oversize Frame Counter
xxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxx Receive Error Byte Frame
xxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxxx Undefined Opcode or Other Error Discarded
Packet Counter
xxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 04
xxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 05
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 06
```

8-280 C122-E003-02EN

```
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 07
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 08
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 09
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 10
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 11
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 12
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 13
xxxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 14
xxxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter
xxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet
Counter
Switch#
```

Displayed items:

- Receive 64 Byte Frame Counter: Number of received frames whose frame length is 64 bytes
- Receive 65-127 Byte Frame Counter: Number of received frames whose length ranges from 65 to 127 bytes
- Receive 128-255 Byte Frame Counter: Number of received frames whose length ranges from 128 to 255 bytes
- Receive 256-511 Byte Frame Counter: Number of received frames whose length ranges from 256 to 511 bytes
- Receive 512-1023 Byte Frame Counter: Number of received frames whose length ranges from 512 to 1023 bytes
- Receive 1024-1522 Byte Frame Counter: Number of received frames whose length ranges from 1519 to 1522 bytes
- Receive 1523-rxMaxSize Byte Frame Counter: Number of received frames whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Receive Frame Counter: Number of received frames
- Receive FCS(CRC) Error Frame Counter: Number of received FCS (CRC) error frames
- Receive Multicast Frame Counter: Number of received multicast frames
- Receive Broadcast Frame Counter: Number of received broadcast frames

- Receive Control Frame Counter: Number of received control frames
- Receive Pause Frame Counter: Number of received pause frames
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Frame Counter: Number of received oversize frames
- Receive Length Out of Range Frame Counter: Number of received length-out-ofrange frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Frame: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Receive Discard Packet Counter: Number of received and discarded packets
- Undefined Opcode or Other Error Discarded Packet Counter: Number of received unsupported Opcode frames
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMC packets
- Receive Unicast Counter: Number of received unicasts
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 0 0)

(Destination for InternalPort2: IO Unit 4 0)

 Receive Discard Packet Counter 02: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 0 1)

(Destination for InternalPort2: IO Unit 4 1)

 Receive Discard Packet Counter 03: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 1 0)

8-282 C122-E003-02EN

(Destination for InternalPort2: IO_Unit 1 0)

 Receive Discard Packet Counter 04: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 1 1)

(Destination for InternalPort2: IO Unit 5 1)

 Receive Discard Packet Counter 05: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 20)

(Destination for InternalPort2: IO Unit 6 0)

 Receive Discard Packet Counter 06: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 2 1)

(Destination for InternalPort2: IO Unit 6 1)

 Receive Discard Packet Counter 07: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 3 0)

(Destination for InternalPort2: IO Unit 7 0)

 Receive Discard Packet Counter 08: Number of received and discarded packets during transfer

(Destination for InternalPort1: IO Unit 3 1)

(Destination for InternalPort2: IO Unit 7 1)

 Receive Discard Packet Counter 09: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/8)

(Destination for InternalPort2: GigabitEthernet0/6)

 Receive Discard Packet Counter 10: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/4)

(Destination for InternalPort2: GigabitEthernet0/2)

 Receive Discard Packet Counter 11: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/7)

(Destination for InternalPort2: GigabitEthernet0/5)

 Receive Discard Packet Counter 12: Number of received and discarded packets during transfer

(Destination for InternalPort1: GigabitEthernet0/3)

(Destination for InternalPort2: GigabitEthernet0/1)

 Receive Discard Packet Counter 13: Number of received and discarded packets during transfer

(Destination for InternalPort1: InternalPort 1)

(Destination for InternalPort2: InternalPort 2)

 Receive Discard Packet Counter 14: Number of received and discarded packets during transfer

(Destination for InternalPort1: CPU)

(Destination for InternalPort2: CPU)

- Transmit Frame Counter: Number of transmitted frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted frames whose length is less than 64 bytes
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress

8-284 C122-E003-02EN

Specifies InternalPort 3 (similar for InternalPort 4)

```
Switch# show ether statistics InternalPort 3
Ethernet statistics.
Time: 2004.05.31.mon.13:58:47
38 InternalPort 3
xxxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxxx Receive FCS(CRC) Error Packet Counter
xxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxx Receive Undersize Packet Counter
xxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxx Receive 64 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 65-127 byte packet counter
xxxxxxxxxxxxxxxxx Receive 128-255 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 256-511 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 512-1023 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxx Receive 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxx Receive 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxx Receive 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter
xxxxxxxxxxxxxxxx Undefined Opcode or Other Error Discarded
Packet Counter
xxxxxxxxxxxxxxxxx Rate Control or L2 Destination Receive
Discard Packet Counter
xxxxxxxxxxxxxxxx Number Of IPMC Packets Which Are Bridged
xxxxxxxxxxxxxxxxx Receive Unicast Counter
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 01
xxxxxxxxxxxxxxxxx Receive Discard Packet Counter 02
xxxxxxxxxxxxxxxxxx Receive Discard Packet Counter 03
xxxxxxxxxxxxxxxxx Transmit Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Pause Control Frame Counter
```

```
xxxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxx Transmit Multicast Frame Counter
xxxxxxxxxxxxxxxxxxxx Transmit Broadcast Frame Counter
xxxxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxxxx Transmit 64 byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit 65-127 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 128-255 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 256-511 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 512-1023 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 1024-2047 byte packet counter
xxxxxxxxxxxxxxxxxxx Transmit 2048-4095 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 4096-8191 byte packet counter
xxxxxxxxxxxxxxxxx Transmit 8192-16383 byte packet counter
xxxxxxxxxxxxxxxxxx Transmit 1523-rxMaxSize byte packet counter
xxxxxxxxxxxxxxxxx Transmit Egress Aging Discard Packet Counter
#Switch
```

Displayed items:

- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet Counter: Number of received FCS (CRC) error frames
- Receive Multicast Packet Counter: Number of received multicast frames
- Receive Broadcast Packet Counter: Number of received broadcast frames
- Receive Control Packet Counter: Number of received control frames
- Receive PAUSE Packet Counter: Number of received pause frames
- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Oversize Packet Counter: Number of received oversize frames
- Receive Length Out of Range Frame Counter: Number of received length-out-ofrange frames
- Receive Byte Counter: Number of received bytes
- Receive Undersize Packet Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received

8-286 C122-E003-02EN

- Receive Framing Error Counte: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Receive 64 byte packet counter: Number of received packets whose frame length is 64 bytes
- Receive 65-127 byte packet counter: Number of received packets whose length ranges from 65 to 127 bytes
- Receive 128-255 byte packet counter: Number of received packets whose length ranges from 128 to 255 bytes
- Receive 256-511 byte packet counter: Number of received packets whose length ranges from 256 to 511 bytes
- Receive 512-1023 byte packet counter: Number of received packets whose length ranges from 512 to 1023 bytes
- Receive 1024-2047 byte packet counter: Number of received packets whose length ranges from 1024 to 2047 bytes
- Receive 2048-4095 byte packet counter: Number of received packets whose length ranges from 2048 to 4095 bytes
- Receive 4096-8191 byte packet counter: Number of received packets whose length ranges from 4096 to 8191 bytes
- Receive 8192-16383 byte packet counter: Number of received packets whose length ranges from 8192 to 16383 bytes
- Receive 1523-rxMaxSize byte packet counter: Number of received packets whose length is 1523 bytes
- Receive Discard Packet Counter: Number of received and discarded packets
- Undefined Opcode or Other Error Discarded Packet Counter: Number of received unsupported Opcode frames
- Rate Control or L2 Destination Receive Discard Packet Counter: Number of rate control or L2 destination discarded packets
- Number Of IPMC Packets Which Are Bridged: Number of bridged IPMC packets
- Receive Unicast Counter: Number of received unicasts
- Receive Discard Packet Counter 01: Number of received and discarded packets during transfer

 $(Destination\ for\ Internal Port 3\colon\ Ten Gigabit Ethernet 1/1)$

(Destination for InternalPort4: TenGigabitEthernet1/1)

 Receive Discard Packet Counter 02: Number of received and discarded packets during transfer

(Destination for InternalPort3: InternalPort3)

(Destination for InternalPort4: InternalPort3)

 Receive Discard Packet Counter 03: Number of received and discarded packets during transfer

(Destination for InternalPort3: CPU) (Destination for InternalPort4: CPU)

- Transmit Frame Counter: Number of transmitted frames
- Transmit Pause Control Frame Counter: Number of transmitted pause control frames
- Transmit FCS(CRC) Error Counter: Number of transmitted FCS errors
- Transmit Multicast Frame Counter: Number of transmitted multicast frames
- Transmit Broadcast Frame Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted frames whose length is less than 72 bytes
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit 64 byte packet counter: Number of transmitted frames whose frame length is 64 bytes
- Transmit 65-127 byte packet counter: Number of transmitted frames whose length ranges from 65 to 127 bytes
- Transmit 128-255 byte packet counter: Number of transmitted frames whose length ranges from 128 to 255 bytes
- Transmit 256-511 byte packet counter: Number of transmitted frames whose length ranges from 256 to 511 bytes
- Transmit 512-1023 byte packet counter: Number of transmitted frames whose length ranges from 512 to 1023 bytes
- Transmit 1024-2047 byte packet counter: Number of transmitted frames whose length ranges from 1024 to 2047 bytes
- Transmit 2048-4095 byte packet counter: Number of transmitted frames whose length ranges from 2048 to 4095 bytes
- Transmit 4096-8191 byte packet counter: Number of transmitted frames whose length ranges from 4096 to 8191 bytes
- Transmit 8192-16383 byte packet counter: Number of transmitted frames whose length ranges from 8192 to 16383 bytes

8-288 C122-E003-02EN

- Transmit 1523-rxMaxSize byte packet counter: Number of transmitted frames whose length ranges from 1523 bytes to the number of bytes in the jumbo frame setting
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress
- Specifies InternalPort 5 (similar for InternalPort 6 to 8)

```
Switch# show ether statistics InternalPort 5
Ethernet statistics.
Time: 2004.05.31.mon.13:58:47
40 InternalPort 5
xxxxxxxxxxxxxxxxx Transmit Packet Counter
xxxxxxxxxxxxxxxxxx Transmit PAUSE Packet Counter
xxxxxxxxxxxxxxxxxxxx Transmit FCS(CRC) Error Counter
xxxxxxxxxxxxxxxxxxxxx Transmit Multicast Packet Counter
xxxxxxxxxxxxxxxxxxx Transmit Broadcast Packet Counter
xxxxxxxxxxxxxxxxx Transmit Fragment Counter
xxxxxxxxxxxxxxxxxxx Transmit Oversize Packet Counter
xxxxxxxxxxxxxxxxx Transmit Byte Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 64 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 65-127 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 128-255 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 256-511 Byte Frame Counter
xxxxxxxxxxxxxxxxx Transmit and Receive 1024-1522 Byte Frame Counter
xxxxxxxxxxxxxxxxxx Receive Packet Counter
xxxxxxxxxxxxxxxxxx Receive Multicast Packet Counter
xxxxxxxxxxxxxxxxxx Receive Broadcast Packet Counter
xxxxxxxxxxxxxxxxxx Receive Control Packet Counter
xxxxxxxxxxxxxxxxxx Receive PAUSE Packet Counter
xxxxxxxxxxxxxxxxx Receive Unsupported Opcode Frame Counter
xxxxxxxxxxxxxxxxxx Receive Jabber Frame Counter
xxxxxxxxxxxxxxxxxx Receive Oversize Packet Counter
xxxxxxxxxxxxxxxxxx Receive Length Out of Range Frame Counter
xxxxxxxxxxxxxxxxx Receive Byte Counter
xxxxxxxxxxxxxxxxxx Receive Undersize Frame Counter
xxxxxxxxxxxxxxxxx Receive Fragment Counter
xxxxxxxxxxxxxxxxx Receive Error Byte Counter
xxxxxxxxxxxxxxxxx Receive Framing Error Counter
xxxxxxxxxxxxxxxxx Receive Interpacket Junk Counter
xxxxxxxxxxxxxxxxxx Discard Packet destined for CoSO
```

Displayed items:

- Transmit Multicast Packet Counter: Number of transmitted multicast frames
- Transmit Broadcast Packet Counter: Number of transmitted broadcast frames
- Transmit Fragment Counter: Number of transmitted frames whose length is less than 72 bytes
- Transmit Oversize Packet Counter: Number of transmitted oversize packets
- Transmit Byte Counter: Number of transmitted bytes
- Transmit and Receive 64 Byte Frame Counter: Number of transmitted/received frames whose frame length is 64 bytes
- Transmit and Receive 65-127 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 65 to 127 bytes
- Transmit and Receive 128-255 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 128 to 255 bytes
- Transmit and Receive 256-511 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 256 to 511 bytes
- Transmit and Receive 512-1023 Byte Frame Counter: Number of transmitted/ received frames whose length ranges from 512 to 1023 bytes
- Transmit and Receive 1024-1522 Byte Frame Counter: Number of transmitted/received frames whose length ranges from 1024 to 1522 bytes
- Receive Packet Counter: Number of received packets
- Receive FCS (CRC) Error Packet Counter: Number of received FCS (CRC) error frames
- Receive Multicast Packet Counter: Number of received multicast packets
- Receive Broadcast Packet Counter: Number of received broadcast packets
- Receive Control Packet Counter: Number of received control packets
- Receive PAUSE Packet Counter: Number of received pause packets

8-290 C122-E003-02EN

- Receive Unsupported Opcode Frame Counter: Number of received unsupported Opcode frames
- Receive Jabber Frame Counter: Number of received Jabber frames
- Receive Oversize Packet Counter: Number of received oversize frames
- Receive Length Out of Range Frame Counter: Number of received length-out-ofrange frames
- Receive Byte Counter: Number of received frames
- Receive Undersize Frame Counter: Number of received frames whose length is less than 64 bytes
- Receive Fragment Counter: Number of received fragment frames
- Receive Error Byte Counter: Number of times that an error control symbol was received
- Receive Framing Error Counter: Number of times that a symbol other than an error control symbol was received
- Receive Interpacket Junk Counter: Number of times that an error control symbol was received between packets
- Discard Packet destined for CoS0: Number of frames discarded because the CoS0 output queue was full
- Discard Packet destined for CoS1: Number of frames discarded because the CoS1 output queue was full
- Discard Packet destined for CoS2: Number of frames discarded because the CoS2 output queue was full
- Discard Packet destined for CoS3: Number of frames discarded because the CoS3 output queue was full
- Discard Packet destined for CoS4: Number of frames discarded because the CoS4 output queue was full
- Discard Packet destined for CoS5: Number of frames discarded because the CoS5 output queue was full
- Discard Packet destined for CoS6: Number of frames discarded because the CoS6 output queue was full
- Discard Packet destined for CoS7: Number of frames discarded because the CoS7 output queue was full
- Receive Discard Packet Counter: Number of received and discarded packets
- Transmit Egress Aging Discard Packet Counter: Number of transmitted packets discarded because of aging at egress

(6) Error Messages

· Port-channel ** is not defined.

Cause: An undefined channel group is specified.

Action: Check the channel group definition.

% Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the unit mounting status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.10.2 clear ether statistics

This command deletes statistical information about the interface.

(1) Synopsis

```
clear ether statistics [<interface-id>]]
```

(2) Options

- <interface-id> (optional): Specifies the interface.
 - IO Unit 0 0-7 1
 - GigabitEthernet 0/1-0/8
 - TenGigabitEthernet 1/1-1/2
 - FastEthernet 2/1-2/2

8-292 C122-E003-02EN

- port-channel 1-7
- InternalPort 1-8
- port 1-43

If this parameter is omitted, statistical information about all interfaces is deleted.

(3) Command mode

user exec

enabled exec

(4) See also

show ether statistics

show interface counter

(5) Examples

· Specifies all slots

```
Switch# clear ether statistics
Switch#
```

· Specifies the connector

```
Switch# clear ether statistics GigabitEthernet 0/1 Switch#
```

(6) Error Messages

· Port-channel ** is not defined.

Cause: An undefined channel group is specified.

Action: Check the channel group definition.

% Not implement daughter card.

Cause: An unmounted interface is specified.

Action: Check the device implementation status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.11 IGMP snooping-related commands

8.3.11.1 show ip igmp snooping

This command displays the IGMP snooping setting.

(1) Synopsis

```
show ip igmp snooping [vlan <vlan-id>]
```

(2) Options

• [vlan <vlan-id>] (optional): Specify the VLAN ID to be displayed. If this option is omitted, the command will display all VLANs on the switch.

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

8-294 C122-E003-02EN

(5) Examples

Displays the setting of all VLANs

```
Switch# show ip igmp snooping

IGMP Status : Enable
The Number of Enable : 2

Vlan Status
---- -------
1 Enable
2 Disable
3 Enable
Switch#
```

Displays the setting of the specified VLAN

```
Switch# show ip igmp snooping vlan 1

IGMP Status : Enable
The Number of Enable : 1

Vlan Status
---- 1 Enable

Switch#
```

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.11.2 show ip igmp snooping mrouter

This command displays information about the multicast router interface that has been dynamically learned or manually set.

(1) Synopsis

```
show ip igmp snooping mrouter [vlan <vlan-id>]
```

(2) Options

• vlan <vlan-id> (optional):

Specifies the VLAN ID whose interface information is to be displayed.

If this parameter is omitted, the interface information on all VLANs defined on the switch is displayed.

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

8-296 C122-E003-02EN

(5) Examples

· Displays information on multicast router ports of all VLANs

```
Switch# show igmp snooping mrouter

Vlan Ports

1 18 GigabitEthernet 0/2(static)

1 19 GigabitEthernet 0/3(dynamic)

2 20 GigabitEthernet 0/4(static)

2 21 GigabitEthernet 0/5(dynamic)

Switch#
```

Displays information on multicast router ports of the specified VLAN

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.11.3 show mac address-table multicast

This command displays layer-2 multicast entries of a switch or VLAN.

(1) Synopsis

```
show mac address-table multicast [vlan <vlan-id>]
[igmp-snooping | user]
```

(2) Options

- vlan <vlan-id> (optional)
 Specifies VLAN ID of the entries to be displayed.
 If this parameter is omitted, entries of all VLANs defined on the switch are displayed.
- igmp-snooping | user (optional)
 - igmp-snooping: Displays only entries learned via IGMP snooping (available only in enabled exec mode).
 - user: Displays only the multicast entries set by the user (available only in enabled exec mode).

(3) Command mode

enabled exec

user exec

(4) See also

ip igmp snooping

8-298 C122-E003-02EN

(5) Examples

Displays VLAN1 layer-2 multicast entries

```
Switch# show mac address-table multicast vlan 1

The Number of Mulicast Address Entry: 4

Vlan Mulicast Address Type Ports

1 01:00:5e:00:01:28 IGMP 17 GigabitEthernet 0/1
1 01:00:5e:00:01:28 IGMP 18 GigabitEthernet 0/2
1 01:00:5e:01:11:11 USER 17 GigabitEthernet 0/1
1 01:00:5e:01:11:13 IGMP 18 GigabitEthernet 0/2
Switch#
```

Displays VLAN1 layer-2 multicast entries learned via IGMP snooping

```
Switch# show mac address-table multicast vlan 1 igmp-snooping

The Number of Multicast Address Entry: 3

Vlan Mulicast Address Type Ports

1 01:00:5e:00:01:28 IGMP 17 GigabitEthernet 0/1
1 01:00:5e:00:01:28 IGMP 18 GigabitEthernet 0/2
1 01:00:5e:01:11:13 IGMP 18 GigabitEthernet 0/2

Switch#
```

Displays VLAN1 layer-2 multicast entries set by the user

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.11.4 show ip igmp snooping statistics

This command displays statistical information on IGMPSnooping.

The number of received packets is displayed only for a VLAN for which IGMPSnooping is enabled. If IGMPSnooping is disabled for the whole unit, the number of received packets is not displayed for any VLAN.

(1) Synopsis

show ip igmp snooping statistics [vlan <vlan-id>]

(2) Options

vlan <vlan-id> (optional)
 Specifies the VLAN ID whose statistical information is to be displayed.
 If this parameter is omitted, statistical information on all VLANs defined on the switch is displayed.

(3) Command mode

enabled exec

user exec

8-300 C122-E003-02EN

(4) See also

clear ip igmp snooping statistics

(5) Examples

Displays statistical information on all VLANs

Switch# show ip igmp snooping statistics						
Vlan	GE Query	SP Query	Report	Leave Group		
1	5	2	10	3		
3	3	2	4	2		
Switch#						

Displayed items:

vlan: VLAN ID of the created VLAN

GE Query: Number of received General Queries

SP Query: Number of received Specific Queries

Report: Number of received Reports

Leave Group: Number of received Leave Groups

If IGMPSnooping is disabled in VLANs, however, the number of received packets is not displayed.

Displays statistical information on VLAN1

Switch# show ip igmp snooping statistics vlan 1						
Vlan	GE Query	SP Query	Report	Leave Group		
1	5	2	10	3		
Switch#						

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.11.5 clear ip igmp snooping statistics

This command clears statistical information on IGMPSnooping.

(1) Synopsis

```
clear ip igmp snooping statistics [vlan <vlan-id>]
```

(2) Options

vlan <vlan-id> (optional)
 Specifies VLAN ID whose IGMPSnooping statistical information is to be cleared.
 If this parameter is omitted, IGMPSnooping statistical information on all VLANs defined on the switch is cleared.

(3) Command mode

enabled exec

user exec

(4) See also

show ip igmp snooping statistics

(5) Examples

Clears IGMPSnooping statistical information on all VLANs

```
Switch# clear ip igmp snooping statistics
Switch#
```

8-302 C122-E003-02EN

Clear IGMPSnooping statistical information on vlan 1

Switch# clear ip igmp snooping statistics vlan 1 Switch#

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the

information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.12 LDAP-related commands

8.3.12.1 show Idap

This command displays ldap setting information.

(1) Synopsis

show ldap

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ldap server

ldap dn

ldap ssl

(5) Examples

```
switch#show ldap
Ldap Server : 10.10.10.10 10.10.10.11

DN : dc=my-domain,dc=com

SSL : enable
switch#
```

Displayed items:

• Ldap Server: IP address of the ldap server

• DN: Base DN for searching

• SSL: Indication of whether ldap over ssl is enabled or disabled

(6) Error Messages

· % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-304 C122-E003-02EN

8.3.13 SNMP-related commands

8.3.13.1 show snmp-server

This command displays snmp setting information.

(1) Synopsis

Displays snmp setting information

```
show snmp-server { engineID | location | contact |
user | host | trap }
```

(2) Options

- engine: Displays the engine ID.
- location: Displays installation location.
- contact: Displays contact information.
- user: Displays user information.
- host: Displays host information.
- trap: Displays the trap setting.

(3) Command mode

user exec

enabled exec

(4) See also

snmp-server location

snmp-server contact

snmp-server engineID local

snmp-server user

snmp-server host

snmp-server enable traps

(5) Examples

· Displays location information

```
Switch# show snmp-server location
Location: where
Switch#
```

· Displays contact information

```
Switch# show snmp-server contact contact: hoge@hoge.co.jp
Switch#
```

· Displays engine information

```
Switch# show snmp-server engine engine: 00000000000001234567890 Switch#
```

· Displays user information

```
Switch# show snmp-server user
a-sss : rw : noauth :
1-sssaaaa : ro : auth : MD5
b-sss : ro : priv : SHA
Switch#
```

8-306 C122-E003-02EN

Displayed items:

- User name: Name of the user connected via SNMP V3
- Access privilege: Access privilege to the MIB tree
 - ro: read only
 - rw: read/write
- Authentication method: Authentication level of SNMP messages
 - noauth: No authentication/encryption performed with passwords
 - auth: Authentication performed with passwords
 - priv: Authentication/encryption performed with passwords
- Encryption method:

Hash function used for encrypting the password:

- MD5: MD5 - SHA: SHA

Displays host information

```
Switch# show snmp-server host
192.168.0.120 : 1 : XXXYYYZZZ : ro
192.168.1.100 : 2c : AAAABBBBCCCC : rw
Switch#
```

Displayed items:

- Host IP address: IP address of snmp manager
- Version: SNMP version
 - 1: snmp v1
 - 2c: snmp v2c
- Community string: Community string
- Access privilege: Access privilege to the MIB tree
 - ro: read onlyrw: read/write
- Displays trap information

```
Switch# show snmp-server trap

192.168.0.100 : 1 : XXXXX

192.168.0.110 : 2c : YYYY

192.168.0.120 : 3 : ZZZZ : priv : md5

Switch#
```

Displayed items:

• For SNMP version 1/2c: [IP address:version:community string]

- IP address: Trap notification destination IP address

- Version: SNMP version

1: snmp v1 2c: snmp v2c

- Community string: Displays the community string

- SNMP version3: [IP address:version:user name:authentication method:encryption method]
 - IP address: Trap notification destination IP address

- Version: SNMP version

3: snmp v3

- User name: snmp v3 user name

- Authentication method: Authentication level of SNMP messages noauth: No authentication/encryption performed with passwords

auth: Authentication performed with passwords

priv: Authentication/encryption performed with passwords

- Encryption method: Hash function used for encrypting the password

md5: MD5 sha: SHA

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-308 C122-E003-02EN

8.3.14 SSH-related commands

8.3.14.1 ssh keygen

This command generates the RSA key/DSA key used by ssh:

- Three types of keys can be created: rsa1, rsa, dsa.
- One type of key file can be set for a server.
- If the key type specified by this command is set and the key specified by the ssh server is used for activation, an error occurs.
- If the user executes this command at the same time as the command is executed on another terminal, an error occurs.
- The time required for generating a key may be much longer depending on the GSWB operating status.

No	Key type	Number of bits	Time (s)
1	rsa1	1024	5
2		2048	45
3	rsa	1024	10
4		2048	60
5	dsa	1024	20
6		2048	225

Table 8.46 Guide to key generation time

(1) Synopsis

ssh keygen <numbit> { rsa1 | rsa | dsa }

(2) Options

- <numbit>: Specifies the number of bits in the key.
 - 1024
 - 2048
- { rsa1 | rsa | dsa }: Specifies the key type.
 - rsa1: Creates an RSA key (SSH protocol Version1)
 - rsa: Creates an RSA key (SSH protocol Version2)
 - dsa: Creates a DSA key (SSH protocol Version2)

(3) Command mode

enabled exec

(4) See also

ssh enable

ssh keydel

(5) Examples

```
Switch# ssh keygen 1024 rsa
Switch#
```

(6) Error Messages

Application running

Cause: Key creation was attempted while the SSH server is running.

Action: Stop the SSH server.

· Command is already running.

Cause: The following command is running.

ssh keygen

Action: Reenter the command after the current command exits.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8-310 C122-E003-02EN

8.3.14.2 ssh keydel

This command deletes the RSA key or DSA key used by ssh.

If the SSH server is operating with the key type specified by this command, an error occurs. In such cases, disable the SSH server by executing the no ssh enable command for the configuration definition, and then execute this command.

(1) Synopsis

· Deletes the RSA key or DSA key used by ssh

```
ssh keydel { rsa1 | rsa | dsa }
```

(2) Options

- { rsa1 | rsa | dsa }: Specifies the key file to be deleted.
 - rsa1: Deletes the RSA key (SSH protocol Version1)
 - rsa: Deletes the RSA key (SSH protocol Version2)
 - dsa: Deletes the DSA key (SSH protocol Version2)

(3) Command mode

enabled exec

(4) See also

ssh enable, ssh keygen

(5) Examples

```
Switch# ssh keydel rsa
Switch#
```

(6) Error messages

Application running

Cause: An attempt was made to delete a key while the SSH server was operating.

Action: Stop the SSH server.

RSA Key(ver1) not exist

Cause: No RSA Key (ver1) file was found.

Action: Check the key status.

RSA Key(ver2) not exist

Cause: No RSA Key (ver2) file was found.

Action: Check the key status.

DSA Key(ver2) not exist

Cause: No DSA Key (ver2) file was found.

Action: Check the key status.

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

• % Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.

8.3.14.3 show ssh

This command displays the ssh server status, SSH protocol version used by ssh, and bit length of the RSA key or DSA key.

(1) Synopsis

show ssh

(2) Options

None

(3) Command mode

enabled exec

8-312 C122-E003-02EN

(4) See also

ssh enable, ssh keygen

(5) Examples

```
Switch# show ssh
SSH :enable
rsal:enable :2048
rsa :disable:
dsa :disable:
Switch#
```

Displayed items:

• SSH server status: Displays whether the server is enabled or disabled.

enable: SSH server enableddisable: SSH server disabled

• SSH protocol version: Displays the SSH protocol version.

rsa1: RSA Version1rsa: RSA Version2dsa: DSA Version2

• Status: Displays whether a key file is set for the SSH server.

enable: Setdisable: Not set

• Bit length

Displays the bit length of the key for each protocol. If no key file for the protocol has been created, this item is blank.

1024: 1024-bit length2048: 2048-bit length

(6) Error Messages

% Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again,

collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively,

contact a certified service engineer.

8.3.15 NTP-related command

8.3.15.1 show ntp

This command outputs NTP setting information.

(1) Synopsis

show ntp

(2) Options

None

(3) Command mode

user exec

enabled exec

(4) See also

ntp server

ntp status

8-314 C122-E003-02EN

(5) Examples

```
Switch# show ntp
Server:
192.168.0.100
192.168.0.110
192.168.0.120
timeout :10
interval:24
Switch# show ntp
```

(6) Error Messages

• % Incomplete command.

Cause: Incomplete command input

Action: Enter the command string correctly.

% Invalid input detected at '^' marker.

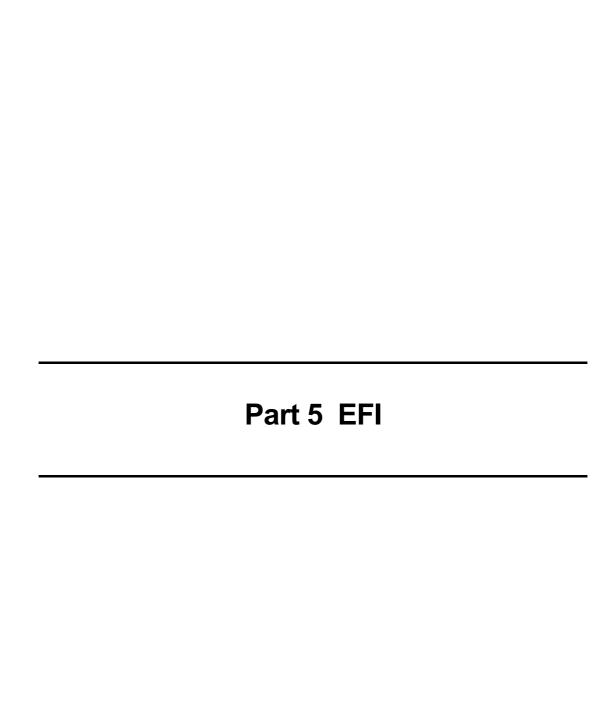
Cause: Invalid character detected at '^' marker in the entered command string

Action: Enter the command string correctly.

· System error.

Cause: An internal error occurred.

Action: Check the system status, and reenter the command. If the error occurs again, collect unit information, configuration definition information, and the information in different types of logs, and restart the unit. Alternatively, contact a certified service engineer.



CHAPTER 9 EFI Overview

Figure 9.1 outlines the PRIMEQUEST extensible firmware interface (EFI) of firmware that boots the operating system (OS).

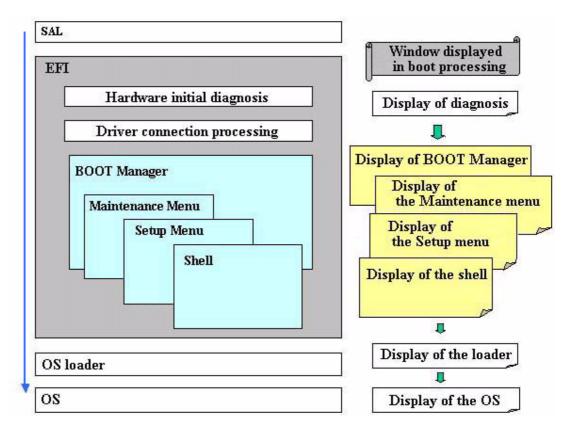


Figure 9.1 EFI outline

The main PRIMEQUEST EFI (hereafter called EFI) functions include the following:

- Supports boot processing of the OS loader
- Supports control of booted devices
- Supports console functions
- Supports EFI application execution prior to the OS boot

SAL expands EFI in memory for operation.

9.1 Boot Function

The EFI loads the different types of EFI drivers required for boot processing and, initialize those drivers.

EFI Boot Manager (hereafter called "Boot Manager") automatically executes boot processing according to preset boot information.

This boot information is set in advance by the installer and stored in the NVRAM variables of the EFI.

9.1.1 NVRAM variables for boot control

This section describes the NVRAM variables that control boot processing.

(1) Boot### variable

Information about the OS loader booted by Boot Manager is stored in this variable.

The information is stored in the EFI_LOAD_OPTION format as shown below. The #### part of the variable represents a displayable string of hexadecimal numbers ranging from 0000 to FFFF.

```
EFI_LOAD_OPTION Descriptor

UINT32 Attributes;

UINT16 FilePathListLength;

CHAR16 Description[];

EFI_DEVICE_PATH FilePathList[];

UINT8 OptionalData [];
```

(2) Driver#### variable

Information about the drivers loaded immediately before booting by Boot Manager is stored in this variable.

The information is stored in the EFI_LOAD_OPTION format as shown above. The #### part of the variable represents a displayable string of hexadecimal numbers ranging from 0000 to FFFF.

(3) BootOrder variable

This variable specifies the actual boot sequence of the target programs specified by the Boot#### variable.

9-2 C122-E003-02EN

(4) DriverOrder variable

This variable specifies the actual loading sequence of the target drivers specified by the Driver#### variable.

(5) BootNext variable

This variable specifies the Boot#### variable used for booting by Boot Manager in the next boot processing.

Boot Manager clears the BootNext variable before control is passed to the boot target specified by the variable. If Boot Manager fails to boot the specified target boot program, boot processing continues according to the BootOrder variable.

9.1.2 Boot processing order

If the BootNext variable is not found, Boot Manager selects Boot#### variables in the order specified by the BootOrder variable to execute boot processing.

If boot processing fails for any of the following reasons, Boot Manager continues processing with the next Boot#### variable specified in the BootOrder variable:

- 1 The device or file specified by the Boot#### variable does not exist.
- 2 A CD-ROM/DVD device is specified as the boot target, but it contains no media.
- 3 PXE boot is specified, but a cable is disconnected.
- 4 PXE boot is specified, but the PXE server is not configured.
- 5 A hard disk device is specified, but it contains no EFI partition.
- 6 A CD-ROM/DVD device is specified, but it contains no EFI partition.
- 7 A virtual floppy disk device is specified, but it contains no EFI partition.
- 8 The file specified as the boot target fails during read processing.
- 9 The file specified as the boot target is not in the EFI executable format.
- 10 The Linux kernel does not exist.
- 11 elilo is forcibly terminated during startup, such as because of [ESC] key input.

Remarks: If an error occurs after control is passed to the OS loader, the boot target is not switched and reset processing is executed using timer monitoring.

9.1.3 Controlling auto-boot processing

By default, Boot Manager executes OS boot processing immediately during power-on boot processing. If no OS is installed, the EFI shell is started.

However, you can interrupt the boot processing and display the Boot Manager menu as follows:

(1) Displaying the Boot Manager menu by making a setting from the MMB Web-UI

Auto-boot can be temporarily cancelled with an MMB Web-UI operation. For details, see Section 10.1 "Starting Boot Manager."

(2) Displaying the Boot Manager menu by changing the Timeout value in an NVRAM variable.

You can use the Timeout value in an NVRAM variable to specify the wait time for boot processing. Specify a period ranging from 1 and 65534 seconds for Timeout. Boot processing is suspended and the Boot Manager menu is displayed during the specified period. The default value is 0.

If a value other than 0 is specified for Timeout and a key is pressed for input during the wait time, auto-boot processing resumes.

For details, see Section 10.3.5 "Set Auto Boot Timeout window."

9-4 C122-E003-02EN

CHAPTER 10 Boot Manager

Boot Manager allows you to configure selected OS automatic booting, start the EFI shell, specify or modify the automatic boot sequence, and display or modify the SCSI driver configuration.

10.1 Starting Boot Manager

By default, the PRIMEQUEST machine immediately starts its OS without displaying the Boot Manager menu.

To display the Boot Manager menu for making various settings, follow the procedure below.

(1) Startup procedure

- 1 From the MMB Web-UI menu, click [Partition] \rightarrow [Partition#x] \rightarrow [Boot Control]. [Boot Control] window appears.
- 2 Select [Force boot into EFI Boot Manager] from [Boot Selector], and click the [Apply] button.
- 3 Turn on the power to the partition. Boot Manager starts after EFI starts. The Boot Manager menu window shown in Figure 10.1 appears.

10.2 Boot Manager Menu

The Boot Manager menu displays the boot options specified in Boot#### variables in the order specified by the BootOrder variable. Auto-boot processing is executed in the order of priority specified with this variable.

Also, you can use key input with the Boot Manager menu to select and start any boot option regardless of the BootOrder values.

When installing an OS, the installer adds the OS boot options, which can also be selected from the Boot Manager menu.

```
EFI Boot Manager ver 1.10 [x.x]

Please select a boot option

EFI Shell [Built-in]

DVD/Acpi(PNP0A03,0)/Pci(1D|0)/Usb(0, 0)

Floppy/Acpi(PNP0A03,0)/Pci(1F|0)/Acpi(PNP0604,0)

Network/Acpi(PNP0A03,0)/Pci(1|1)/Pci(0|0)/Pci(1|0)/Mac(0007E9246

Boot Option Maintenance Menu

Setup Menu

Use ↑ and ↓ to change option(s). Use Enter to select an option
```

Figure 10.1 Example of the displayed [Boot Manager Menu] window

The table below describes the items displayed in the window shown in Figure 10.1.

Table 10 1	Display items	in the	[Boot Manager]	Menul window
Table IV. I	DISDIAY ILCIIIS) III UIC	IDUUL Mahauci	IVICITUT WILLUOW

Item	Description
EFI Shell [Built-in]	Starts the EFI shell.
DVD/Acpi (PNP0A03,0)/	Performs booting from a DVD-ROM or CD-ROM.
Floppy/Acpi (PNP0A03,0)/	Performs booting from a floppy disk.
Network/Acpi (PNP0A03,0)/	Performs network booting.
Boot Option Maintenance Menu	Displays the [Boot Option Maintenance Menu],
	which can be used to add and delete Boot####
	variables and change boot priorities with the
	BootOrder variable.
Setup Menu	Displays the [EFI Setup Menu], which can be used to
	display and change the SCSI driver configuration.

10-2 C122-E003-02EN

(1) Menu operation

 $[Partition] \rightarrow [Partition \#x] \rightarrow [Boot Control] \rightarrow [Force boot into EFI Boot Manager]$

(2) GUI operation

Boot Manager allows you to use the keys listed in the table below, for example, to select items.

Table 10.2 Keys used for Boot Manager operation

Key	Description
$\uparrow \downarrow$	Moves the cursor up or down. The [^] key can also be used as the
	up arrow key and the [v] or [V] key can also be used as the down
	arrow key.
$\leftarrow \rightarrow$	Moves the cursor to the left or right. The $[\leftarrow]$ key can also be used
	as the left arrow key and the $[\rightarrow]$ key can also be used as the right
	arrow key.
PageUp / PageDown	Displays the previous or next screen.
Home / End	Moves the cursor to the top or bottom item on the screen.
Enter	Makes the current item selection effective.

Remark: Note that this table does not apply to the SCSI Configuration Utility, which is invoked from the [Setup] menu. For details, see the key operation descriptions displayed in the window or Help.

(3) Window operation

- 1 Select the desired item by moving the cursor up or down.
- 2 Press the [Enter] key.

10.3 Boot Option Maintenance Menu

The Boot Option Maintenance menu allows you to directly perform a boot from a specified boot file, add or delete boot options (Boot#### variable of NVRAM variables), or change the boot sequence (BootOrder variable).

Figure 10.2 shows the [Boot Option Maintenance Menu] window as it is displayed immediately after startup.

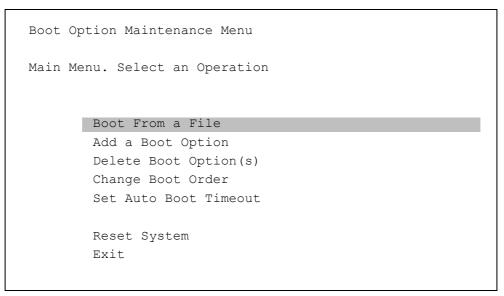


Figure 10.2 Example of the displayed [Boot Option Maintenance Menu (Main Menu)] window

Table 10.3 Outline of functions available in the [Boot Option Maintenance Menu (Main Menu)] window

Function	Description
Boot From a File	Performs a boot from a specified file.
Add a Boot Option	Adds a new boot option.
Delete Boot Option(s)	Deletes the specified boot option(s).
Change Boot Order	Changes boot priorities and reflect the changes to the BootOrder variable.
Set Auto Boot Timeout	Specifies the input wait time in seconds that may elapse after Boot Manager displays its menu during auto-boot processing.
Reset System	Resets the target partition.
Exit	Used to return to the [Boot Manager Menu] window.

10-4 C122-E003-02EN

(1) Menu operation

Select [Boot Manager] → [Boot Option Maintenance Menu].

(2) Window operation

- 1 Select the item to execute by moving the cursor up or down.
- 2 Press the [Enter] key.

10.3.1 Boot From a File window

This window allows you to perform a boot by directly specifying the boot file contained in a device.

```
Boot Option Maintenance Menu

Boot From a File. Select a Volume

NO_VOLUME_LABEL [Acpi(PNPOA03,0)/Pci(1|1)/Pci(0|2)/Pci(1|0)/Scsi
Removable Media Boot [Acpi(PNPOA03,0)/Pci(1D|1)/Usb(0, 0)/Usb(1,
Load File [Acpi(PNPOA03,0)/Pci(1E|0)/Pci(8|0)/Mac(000B5D6E004F)]
Load File [EFI Shell [Built-in]]
Exit
```

Figure 10.3 Example of the displayed [Boot From a File] window

(1) Menu operation

Select [Boot Manager] → [Boot Option Maintenance Menu] → [Boot From a File].

(2) Window operation

- 1 Select a device from the displayed device list, and then select a boot file. Selecting [Exit] closes the [Boot From a File] window.
- 2 Press the [Enter] key.

10.3.2 Add a Boot Option window

This window allows you to add new boot options. Boot options comprise information stored in Boot#### variables, including the device path and OS loader information and the boot information to be passed to the OS loader.

```
Boot Option Maintenance Menu

Add a Boot Option. Select a Volume

NO_VOLUME_LABEL[Acpi(PNP0A03,0)/Pci(1|1)/Pci(0|2)/Pci(1|0)/Scsi
RemovableMediaBoot[Acpi(PNP0A03,0)/Pci(1D|1)/Usb(0,0)/Usb(1,
LoadFile[Acpi(PNP0A03,0)/Pci(1E|0)/Pci(8|0)/Mac(00B5D6E004F)]
LoadFile[EFI Shell[Built-in]]
Exit
```

Figure 10.4 Example of the displayed [Add a Boot Option] window

(1) Menu operation

Select [Boot Manager] → [Boot Option Maintenance Menu] → [Add a Boot Option].

(2) Window operation

- 1 Select a device from the displayed device list, and then select a boot file.
- 2 Specify the following items:

[Enter New Description:]

Enter a boot option description that will be displayed in the Boot Manager menu.

[Enter BootOption Data Type:]

If an optional parameter needs to be passed to the OS loader, press the [a] (Ascii) or [u] (Unicode) key. If no optional parameter is required, press the [n] key.

- 3 If necessary, specify optional parameters after [Enter BootOption Data:].
- 4 For Save [Y-Yes N-No]:, press the [y] key.

10-6 C122-E003-02EN

(3) Example

An example is provided below.

Enter New Description: Linux Boot

Enter BootOption Data Type: Unicode

Enter BootOption Data: elilo mylinux 3

Save [Y-Yes N-No]: y

This example shows the booting of OS (Linux) in run level 3 with mylinux specified in the label in elilo.conf.

Figure 10.5 shows a sample boot file and Figure 10.6 shows a boot option setting example.

Figure 10.5 Sample boot file (elilo.conf)

```
Filename: \EFI\redhat\elilo.efi
DevicePath: [Acpi(PNP0A03,1)/Pci(1F|0)/Pci(2|0)/Scsi(Pun1,Lun0)/HD
(Part1,SigA478626A-9672-449A-A86B-2BC3F4CAD9E2)/\EFI\redhat\elilo.efi]
IA-64 EFI Application 06/16/04 12:05a 345,564 bytes

Enter New Description: Linux Boot
New BootOption Data. ASCII/Unicode strings only, with max of 240 characters
Enter BootOption Data Type [A-Ascii U-Unicode N-No BootOption] : Unicode
Enter BootOption Data [Data will be stored as Unicode string]:
elilo mylinux 3

Save [Y-Yes N-No]:
```

Figure 10.6 Boot option setting example

When, in this example, you select [Exit] from the [Boot Option Maintenance Menu] after setting boot options, an item named "Linux Boot" is added to the [Boot Manager Menu] window, as shown in Figure 10.7.

If this [Linux Boot] is selected, Linux is started in run level 3.

```
Please select a boot option

EFI Shell [Built-in]

DVD/Acpi (PNP0A03,0)/Pci (1D|1)/Usb(0,0)/Usb(1,0)

Network/Acpi (PNP0A03,0)/Pci (1E|0)/Pci (8|0)/Mac(000B56E004F)

Linux Boot

Boot Option Maintenance Menu

Setup Menu

Use ↑ and ↓ to change option(s). Use Enter to select an option
```

Figure 10.7 Boot Manager menu as it is displayed after a boot option is added

10-8 C122-E003-02EN

When you select [Linux Boot] from the [Boot Manager Menu] window, Linux starts in run level 3.

10.3.3 Delete Boot Option(s) window

This window allows you to delete one or more specified boot options.

```
Boot Option Maintenance Menu

Delete Boot Option(s). Select an Option

EFI Shell [Built-in]
   DVD/Acpi (PNPOAO3,0)/Pci (1D|0)/Usb(0, 0)
   Floppy/Acpi (PNPOAO3,0)/Pci (1F|0)/Acpi (PNPO6O4,0)
   Network/Acpi (PNPOAO3,0)/Pci (1|1)/Pci (0|0)/Pci (1|0)/Mac (0007E9246)

Delete All Boot Options
   Save
   Help
   Exit

VenHw (D65A6B8C-71E5-4DF0-A909-F0D2992B5AA9)
   BootFFFE
```

Figure 10.8 Example of the displayed [Delete Boot Option(s)] window

Table 10.4 summarizes the functions of submenus available in the [Delete Boot Option(s)] window.

When the [Delete Boot Option(s)] window is displayed, you can also use the [0] key in addition to the generally used keys listed in Table 10.2.

Table 10.4 Functions of submenus available in the Delete Boot Option(s) window

Submenu	Description	
Delete All Boot Options	ns Displays the message shown below.	
	Delete ALL of above Boot Options [Y-Yes N-No]:	
	Pressing the [y] or [Y] key deletes all boot options.	
	Pressing the [n] or [N] key cancels the deletion operation.	
Save	Saves the configuration after the deletion.	
Help	Displays help information on the [Delete Boot Option(s)]	
	window.	
Exit	Closes the [Delete Boot Option(s)] window.	
	If you deleted one or more boot options, but did not execute	
	[Save], the following confirmation message appears:	
	Save? [Y to save, N to ignore]	
	If you press the [y] or [Y] key, the settings are saved and then	
	the window closes. If you press the [n] or [N] key, the new	
	settings are discarded and the window closes.	

Table 10.5 Keys used for operation on the [Delete Boot Option(s)] window

Key	Description	
d	When the [d] or [D] key is pressed for input, the following	
	message is displayed:	
	Delete selected Boot Option [Y-Yes N-No]:	
	Pressing the [y] or [Y] key deletes the selected boot options.	
	Pressing the [n] or [N] key cancels deletion.	
a	When the [a] or [A] key is pressed for input, the following	
	message is displayed:	
	Delete ALL of above Boot Options [Y-Yes N-No]:	
	Pressing the [y] or [Y] key deletes all boot options.	
	Pressing the [n] or [N] key cancels deletion.	

(1) Menu operation

Select [Boot Manager] \rightarrow [Boot Option Maintenance Menu] \rightarrow [Delete Boot Option(s)].

(2) Window operation

- 1 Select the boot option(s) you want to delete.
 The question "Delete selected Boot Option [Y-Yes N-No]:" appears.
- 2 When you press the [y] key, the selected boot option(s) are deleted.
- 3 Select [Save] and press the [Enter] key.

10-10 C122-E003-02EN

4 Select [Exit] and press the [Enter] key to close the [Delete Boot Option(s)] window.

Remarks: To delete all options at the same time, press the [a] key.

Press the [y] key as input for "Delete All of above Boot Options[Y-Yes N-No]." All the boot options are then deleted.

10.3.4 Change Boot Order window

The [Change Boot Order] window lists boot options, with the highest-priority options displayed first. The window is used to change the displayed order of the options.

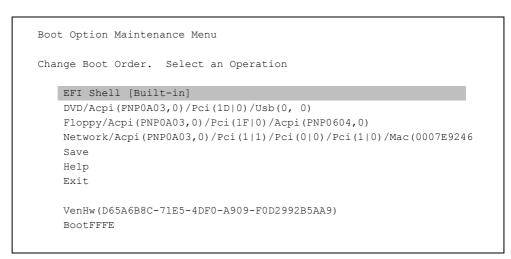


Figure 10.9 Example of the displayed [Change Boot Order] window

Table 10.6 Functions of submenus available in the [Change Boot Order] window

Submenu	Description	
Save	Saves the settings.	
Help	Displays help information on the [Change Boot Order] window.	
Exit	Closes the [Change Boot Order] window.	
	If you deleted one or more boot options, but did not execute	
	Save, the following confirmation message appears:	
	Save? [Y to save, N to ignore]	
	If you press the [y] or [Y] key, the settings are saved and then	
	the window closes. If you press the [n] or [N] key, the new	
	settings are discarded and the window closes.	

Not only the basic keys listed in Table 10.2, "Keys used for Boot Manager operation," but also the keys listed in Table 10.7 below can be used in the [Change Boot Order] window.

Table 10.7 Keys used for operation on the [Change Boot Order] window

Key	Description
u	Raises the priority of the boot option one level.
d	Lowers the priority of the boot option one level.

(1) Menu operation

Select [Boot Manager] → [Boot Option Maintenance Menu] → [Change Boot Order].

A window like Figure 10.9 appears. This window displays boot options based on the boot sequence.

(2) Window operation

- 1 Select one or more boot options whose priority in the boot sequence should be changed.
- 2 Press the [u] or [a] keys to change the boot sequence of the boot options.
- 3 Select [Save] and press the [Enter] key to save the settings.
- 4 Select [Exit] to close the [Change Boot Order] window.

10-12 C122-E003-02EN

10.3.5 Set Auto Boot Timeout window

If you want the system to display the Boot Manager menu and wait for input instead of immediately booting the OS, use this menu to specify the wait time.

```
Boot Option Maintenance Menu

Set Auto Boot Timeout. Select an Option

Set Timeout Value

Disable Timeout

Help

Exit
```

Figure 10.10 Example of the displayed [Set Auto Boot Timeout] window

Table 10.8 Functions of submenus available in the [Set Auto Boot Timeout] window

Submenu	Description	
Set Timeout Value	Specifies the input wait time that may elapse after Boot	
	Manager displays its menu.	
Disable Timeout	Displays the [Boot Manager Menu] window instead of	
	performing automatic boot processing.	
Help	Displays help information on the [Set Auto Boot Timeout]	
	window.	
Exit	Closes the [Set Auto Boot Timeout] window.	

(1) Menu operation

Select [Boot Manager] \rightarrow [Boot Option Maintenance Menu] \rightarrow [Set Auto Boot Timeout].

A window like Figure 10.10 appears.

(2) Window operation

1 Use the following submenu to specify a timeout value.

Set Timeout Value: Specify a value of time in seconds that may elapse before booting starts ($0 \le N \le 65534$). The default is 0.

Disable Timeout: Select this item if you want the system to display the [Boot Manager] menu and wait for input instead of performing automatic boot processing.

2 Select [Exit] and press the [Enter] key to close the [Set Auto Boot Timeout] window.

10.3.6 Reset System

This window allows you to reset the partition.

(1) Menu operation

Select [Boot Manager] \rightarrow [Boot Option Maintenance Menu] \rightarrow [Reset System].

The [Boot Option Maintenance Menu] closes and the partition is reset.

10.3.7 Exit

This window allows you to return to the [Boot Manager] menu.

(1) Menu operation

Select [Boot Manager] \rightarrow [Boot Option Maintenance Menu] \rightarrow [Exit].

The [Boot Option Maintenance] menu closes and the [Boot Manager] menu returns.

10-14 C122-E003-02EN

10.4 EFI Setup Menu

The EFI Setup Menu allows you to start an EFI driver configuration tool and set up the USB keyboard.

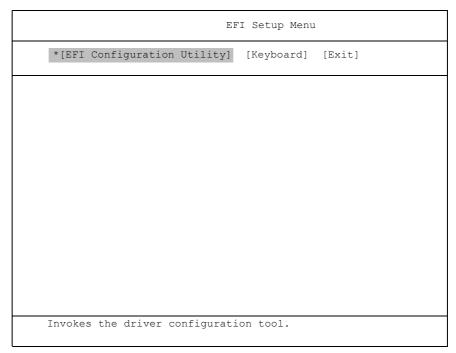


Figure 10.11 EFI Setup Menu as it is displayed immediately after startup

Table 10.9 Functions of the EFI Setup Menu

Item	Description			
EFI Configuration	Starts the EFI driver configuration tool. You can choose the			
Utility	SCSI configuration tool in on-board mode.			
Keyboard	Specifies the USB keyboard to be used in the preboot			
	environment.			
Exit	Used to return to the Boot Manager menu window.			

(1) Menu operation

Select [Boot Manager] → [Setup Menu].

A window like Figure 10.11 appears.

(2) Window operation

1 Select the desired item by moving the cursor to the left or right.

2 Press the [Enter] key.

10.4.1 EFI Configuration Utility window

This window allows you to start the EFI driver configuration tool.

Remarks: The controllers listed in the [EFI Configuration Utility] window are limited to those whose configuration utilities are implemented by the corresponding EFI drivers. An EFI driver configuration utility can be invoked by selecting the corresponding controller in this window. Some EFI drivers do not have a configuration utility, and the operation of a configuration utility varies depending on the specifications of the EFI driver. For details, see the driver specifications.

If a configuration utility is provided separately as an EFI application, use it to configure the controller.

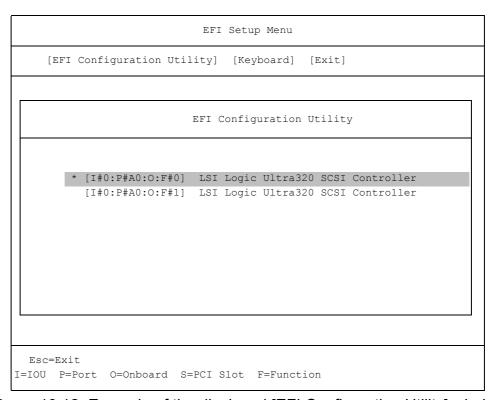


Figure 10.12 Example of the displayed [EFI Configuration Utility] window

10-16 C122-E003-02EN

Symbol	Description			
I#n	IO unit number. n ranges from 0 to 7.			
P#cn	PCI Express port name. c ranges from A to D, and n is 0 or 1.			
O	Displayed in on-board mode.			
S#n	PCI slot number. n ranges from 0 to 3.			
F#n	PCI configuration function number. n ranges from 0 to 7.			

Table 10.10 Symbols displayed for the [EFI Configuration Utility] window

(1) Menu operation

[Boot Manager] \rightarrow [Setup Menu] \rightarrow [EFI Configuration Utility].

(2) Window operation

- 1 Select the item you want to reconfigure. The configuration tool corresponding to the selected item starts. For subsequent configuration steps, see Section 10.4.3, "SCSI Configuration Utility."
- 2 Make the necessary configuration changes, and then press the [Esc] key to exit from the [EFI Configuration Utility] window.

10.4.2 Keyboard window

This window allows you to specify the USB keyboard type to be used in the preboot environment.

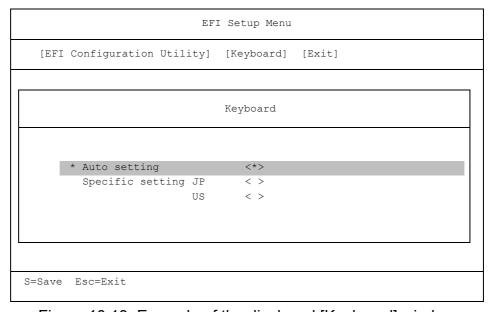


Figure 10.13 Example of the displayed [Keyboard] window

Table 10.11 Items displayed in the [Keyboard] window

Item	Description					
Auto setting	Automatically determines the keyboard type by obtaining the country information for the connected keyboard. Use this item only when you are sure that the keyboard can transmit appropriate country information to the system.					
Specific setting	Explicitly specifies a keyboard type. Use this item when the keyboard cannot transmit appropriate country information to the system.					

(1) Menu operation

 $[Boot Manager] \rightarrow [Setup Menu] \rightarrow [Keyboard].$

(2) Window operation

- 1 Select the item to change the keyboard configuration. For information on the meaning of each item, see Table 10.11.
- 2 Press the [s] or [S] key to save the settings.
- 3 Press the [Esc] key to close the [Keyboard] window.

10-18 C122-E003-02EN

10.4.3 SCSI Configuration Utility

The SCSI Configuration Utility allows you to change the transfer rate and data width of the device for each SCSI channel.

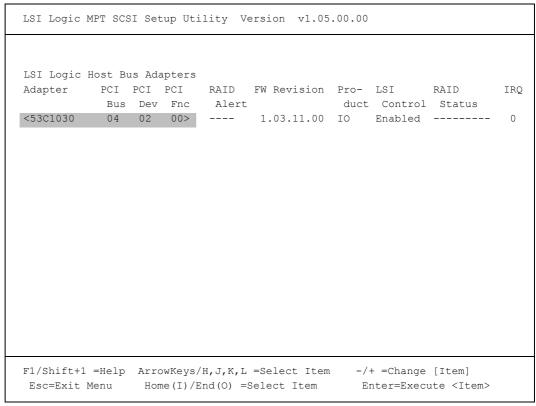


Figure 10.14 Example of the displayed [LSI Logic Host Bus Adapters] window of the SCSI Configuration Utility

* Note on using HyperTerminal

The SCSI Configuration utility assumes that the screen size is 80 x 25, while the Windows-provided HyperTerminal program assumes that the screen size is fixed at 80 x 24. Therefore, the top and bottom lines of the SCSI Configuration Utility window are not displayed.

Description of keys

In the SCSI Configuration Utility, you can use the keys listed in the table below, for example, to select items.

Key	Description
F1/Shift+1	Displays help information on the utility.
Cursor key/H/J/K/L	Moves the cursor to select an item.
Home(I)/End(O)	Moves the cursor to select an item.
-/+	Changes the value of the selected item (parameter).
Enter	Selects the item.
Esc	Cancels the setting. This key can also be used to return to the
	previous window or exit from the utility.

Table 10.12 Keys used for SCSI Configuration Utility operation

(1) Menu operation

Select [Boot Manager] \rightarrow [Setup Menu] \rightarrow [EFI Configuration Utility], and then select [SCSI Controller] for the channel you want to reconfigure.

The SCSI Configuration Utility starts up and the [LSI Logic Host Bus Adapters] window shown in Figure 10.14 appears.

(2) Operations on the window

1 Open the [Adapter Properties] window. Select <53C1030 04 02 00> in the [LSI Logic Host Bus Adapters] window shown in Figure 10.14.

The [Adapter Properties] window shown in Figure 10.15 appears.

Figure 10.15 Example of the displayed [Adapter Properties] window

10-20 C122-E003-02EN

The table below summarizes the functions and parameters provided by the menu.

Table 10.13 Items displayed in the [Adapter Properties] window

Item	Parameters	Default	Description
Device Properties			Displays the Device
			Properties menu.
RAID Properties			Displays the RAID
			Properties menu.
Boot Support	Enabled BIOS & OS	Enabled BIOS & OS	Specifies whether to
	Enabled OS Only		enable or disable the
	Enabled BIOS Only		controller.
	Disabled		
Host SCSI ID	0-15	7	Specifies the controller
			SCSI ID.
Secondary Cluster	No	No	Specify this item in
Server	Yes		multi-initiator mode.
			This item is required for
			using Microsoft Cluster
			Server.
Termination Control	Auto	Auto	Specifies SCSI bus
	Off		termination.
Restore Defaults			Pressing the <enter></enter>
			key resets the items to
			their defaults.

2 Open the [Device Properties] window. Select <Device Properties> in the [Adapter Properties] window shown in Figure 10.15.

The [Device Properties] window shown in Figure 10.16 appears.

SCSI Device Identifier MB/Sec MT/Sec Data Width ID LUNs >	Device	e Properties						
0 FUJITSU MAP3367NC 5207 320 [160] [16] [Yes] [Yes] 1 - 320 [160] [16] [Yes] [Yes] 2 - 320 [160] [16] [Yes] [Yes] 3 - 320 [160] [16] [Yes] [Yes] 4 - 320 [160] [16] [Yes] [Yes] 5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes]	SCSI	Device Identifier		MB/Sec	MT/Sec	Data	Scan	Scan
1 - 320 [160] [16] [Yes] [Yes] 2 - 320 [160] [16] [Yes] [Yes] 3 - 320 [160] [16] [Yes] [Yes] 4 - 320 [160] [16] [Yes] [Yes] 5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes]	ID					Width	ID	LUNs >
2 - 320 [160] [16] [Yes] [Yes] 3 - 320 [160] [16] [Yes] [Yes] 4 - 320 [160] [16] [Yes] [Yes] 5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	0	FUJITSU MAP3367NC	5207	320	[160]	[16]	[Yes]	[Yes]
3 - 320 [160] [16] [Yes] [Yes] 4 - 320 [160] [16] [Yes] [Yes] 5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	1	_		320	[160]	[16]	[Yes]	[Yes]
4 - 320 [160] [16] [Yes] [Yes] 5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	2	_		320	[160]	[16]	[Yes]	[Yes]
5 - 320 [160] [16] [Yes] [Yes] 6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	3	_		320	[160]	[16]	[Yes]	[Yes]
6 ESG-SHV 320 [160] [16] [Yes] [Yes] 7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	4	_		320	[160]	[16]	[Yes]	[Yes]
7 53C1030 320 [160] [16] [Yes] [Yes] 8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	5	_		320	[160]	[16]	[Yes]	[Yes]
8 - 320 [160] [16] [Yes] [Yes] 9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	6	ESG-SHV		320	[160]	[16]	[Yes]	[Yes]
9 - 320 [160] [16] [Yes] [Yes] 10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	7	53C1030		320	[160]	[16]	[Yes]	[Yes]
10 - 320 [160] [16] [Yes] [Yes] 11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	8	_		320	[160]	[16]	[Yes]	[Yes]
11 - 320 [160] [16] [Yes] [Yes] 12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	9	_		320	[160]	[16]	[Yes]	[Yes]
12 - 320 [160] [16] [Yes] [Yes] 13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	10	_		320	[160]	[16]	[Yes]	[Yes]
13 - 320 [160] [16] [Yes] [Yes] 14 - 320 [160] [16] [Yes] [Yes]	11	_		320	[160]	[16]	[Yes]	[Yes]
14 - 320 [160] [16] [Yes] [Yes]	12	_		320	[160]	[16]	[Yes]	[Yes]
	13	_		320	[160]	[16]	[Yes]	[Yes]
15 - 320 [160] [16] [Yes] [Yes]	14	-		320	[160]	[16]	[Yes]	[Yes]
	15	-		320	[160]	[16]	[Yes]	[Yes]

Figure 10.16 Example of the displayed [Device Properties] window

The table below summarizes the functions and parameters provided by the menu.

Table 10.14 Items displayed in the [Device Properties] window

Item	Parameters	Default	Description
MB/Sec	320	320	Specifies the maximum
	160		synchronous data transfer rate
	80		(MB/second). You cannot edit
	40		this field. The value of this
	20		field changes when you change
	0		the [MT/Sec] or [Data Width]
			value.
MT/Sec	160	160	Specifies the maximum
	80		synchronous data transfer rate
	40		(MT/second).
	20		
	Async		

10-22 C122-E003-02EN

Item	Parameters	Default	Description
Data Width	16	16	Specifies the data transfer
	8		width.
Scan ID	Yes	Yes	Specifies whether to scan the
	No		ID selected at the time of
			startup.
Scan LUNs >0	Yes	Yes	Specifies whether to scan
	No		LUNs greater than 0.
Disconnect	Off	Off	Specifies whether to permit
	On		SCSI operation disconnection.
SCSI Timeout	0-255	10	Specifies the SCSI operation
			timeout value.
Queue Tags	On	On	Specifies whether to permit use
	Off		of queue tags.
Format			Formats the selected device at
			low level. (This item is only
			available when the device is a
			hard disk drive.)
Verify			Verifies every sector of the
			selected device and, if any
			defective sector is found,
			performs reassignment. (This
			item is only available when the
			device is a hard disk drive.)
Restore Defaults			Pressing the [Enter] key resets
			the items to their defaults.

- 3 Change the settings.
 - 1) Select the desired item by moving the cursor up, down, left or right.
 - 2) Change the parameter.
 - 3) Press the [Enter] key.
 - 4) Press the [Esc] key to exit from the tool.
- 4 Save the settings.

If you press the [Esc] key in the [Adapter Properties] or [Device Properties] window to exit from the tool, the following window appears:

C122-E003-02EN 10-23

```
LSI Logic MPT SCSI Setup Utility Version v1.05.00.00

Adapter and/or device property changes have been made.

<Cancel Exit>
<Save changes then exit this menu>
<Discard changes then exit this menu>
Exit the Configuration Utility

F1/Shift+1 =Help ArrowKeys/H, J, K, L =Select Item -/+ =Change [Item]
Esc=Exit Menu Home(I)/End(O) =Select Item Enter=Execute <Item>
```

Figure 10.17 Example of the displayed configuration change save screen

Each item is explained below.

Table 10.15 Items

Item	Description
Cancel Exit	Used to cancel exit from the utility and return to the [Adapter
	Properties] or [Device Properties] window.
Save changes then	Used to save changes and return to the [LSI Logic Host Bus
exit this menu	Adapters] window.
Discard changes	Used to discard changes and return to the [LSI Logic Host Bus
then exit this	Adapters] window.
menu	

- 5 Select the desired item using the cursor keys, and then press the [Enter] key.
- 6 Exit from the utility.
 When you press the [Esc] key in the [LSI Logic Host Bus Adapters] window, the window shown in Figure 10.18 appears.
- 7 Select an item and press the [Enter] key.

10-24 C122-E003-02EN

Figure 10.18 Example of the displayed Exit window

Each item is described below.

Table 10.16 Items displayed in the Exit window

Item	Description
	Used to cancel exit from the utility and return to
	the [LSI Logic Host Bus Adapters] window.
Exit the Configuration Utility	Used to exit from the utility and return to [EFI
	Configuration Utility] of the Setup Menu.

C122-E003-02EN 10-25

CHAPTER 11 DVD Retry Boot

When configuring boot operation using the MMB Web-UI [Boot Control] menu, you can specify that the boot processing be retried from the DVD in case of a boot failure.

This chapter describes the steps for executing a DVD boot retry.

Figure 11.1 shows an example of a window displayed during DVD retry boot processing.

```
Confirm that the preparation of the built-in DVD drive has been ready and press an Enter key.

Enter key - DVD boot

Esc key - System Reset

Retry count: 0 (<=3)

Booting from DVD starts automatically in 180 seconds
```

Figure 11.1 Sample window for DVD retry boot processing

(1) Window operation steps

When DVD retry boot processing begins, the confirmation message shown below is displayed together with the number of retries up to this point and the number of seconds remaining until the next boot.

The example shows that 0 retries have been executed (out of 3 possible retries) and the next reboot will start in 180 seconds.

```
Confirm that the preparation of the built-in DVD drive has been ready and press an Enter key.

Enter key - DVD boot

Esc key - System Reset
```

C122-E003-02EN 11-1

```
Retry count: 0 (<=3)
Booting from DVD starts automatically in 180 seconds</pre>
```

1 When the message is displayed, make sure that the DVD drive is connected and the DVD is inserted, and then press [Enter] key.

The system is reset, and the OS is restarted.

Remarks:

- To cancel booting, press the [Esc] key.
- You can press any key except [Enter] key to stop the wait time counter. If you do so, a confirmation message appears and the system begins waiting for your key input.

If the drive is not correctly connected or the DVD is not correctly inserted when you press the [Enter] key, the message shown below appears.

Reconnect the drive or reinsert the DVD, and then press the [Enter] key.

If the drive is not correctly connected:

No DVD drive.

If the DVD is not correctly inserted:

No media.

• If no key is pressed for input before the time indicated in step 1 elapses, boot processing starts automatically.

11-2 C122-E003-02EN

CHAPTER 12 EFI Shell and EFI Commands

The PRIMEQUEST EFI supports the EFI shell function, which enables commands to be executed from a console.

12.1 Auto-startup File

After being started, the EFI shell first checks for the startup.nsh file in the specified execution path.

If the file is found, the commands written in the file are executed before a wait for input from the console. The startup.nsh file is optional.

Remark: The execution path is the directory path specified in the path variable of a shell environment variable.

The directry path can be displayed and changed by the set command.

C122-E003-02EN 12-1

12.2 EFI Shell Command Syntax

Shell environment variables can be specified and referenced with the set command.

As shown below, the environment variable name must be enclosed between the % characters for access when it is used as an argument to a shell command:

%myvariable%

The shell has a special variable called lasterror. This variable retains the return value of the shell command executed last.

The "*", "?", "[", and "]" characters are handled as wildcard characters in a file name used as an argument to a shell command.

Table 12.1 Wildcards

String	Explanation
"*"	Represents zero or more characters in a file name.
"?"	Represents exactly one character in a file name.
"[" string "]"	Represents any one character between [and]. Example: [a-zA-Z]

12-2 C122-E003-02EN

12.3 Output Redirection

Output of an EFI shell command can be redirected to a file. The syntax of the redirection is as follows:

Command > unicode output file pathname

Command >a ascii output file pathname

Command 1> unicode_output_file_pathname

Command 1>a ascii output file pathname

Command 2> unicode_output_file_pathname

Command 2>a ascii output file pathname

Command >> unicode output file pathname

Command >>a ascii_output_file_pathname

Command 1>> unicode output file pathname

Command 1>>a ascii output file pathname

Table 12.2 lists the character strings used to indicate a redirect or append operation.

String Explanation ">" Redirects the standard output to a Unicode file. ">a" Redirects the standard output to an ASCII file. "1>" Redirects the standard output to a Unicode file. Redirects the standard output to an ASCII file. "1>a" "2>" Redirects the standard error output to a Unicode file. "2>a" Redirects the standard error output to an ASCII file. ">>" Appends the standard output to a Unicode file. ">>a" Appends the standard output to an ASCII file. "1>>" Appends the standard output to a Unicode file. "1>>a" Appends the standard output to an ASCII file.

Table 12.2 Special strings

The shell can redirect the standard output or standard error output to a single file.

Remark: The standard output and the standard error output cannot both be redirected to the same file. Redirection to multiple files at the same time is not possible.

C122-E003-02EN 12-3

12.4 Batch Script

The EFI shell can execute commands from batch script files as follows:

- The batch script files use the ".nsh" extension.
- The batch script files are created as Unicode files or ASCII files.
- The batch scripts support the positional argument, which can be used to reference each argument by a number, as in %n (n=0 to 9). %0 indicates the script file currently being executed.
- The display during execution of a command from a batch script is echoed on the console
- The echo –off command is used to disable display of a command read from a batch file.
- The shell does not save information on execution of a command from a batch script.
- The history save function used with cursor keys is not supported.
- If a command error occurs in a batch script, processing is continued by default.
- A batch script can test the results from the last command executed by using the if command with the lasterror shell variable specified.
- A line in a batch script can be commented out by inserting the "#" character.

12-4 C122-E003-02EN

12.5 List of EFI Shell Commands

PRIMEQUEST EFI supports the following EFI shell commands.

Table 12.3 EFI shell commands

No.	Command	Batch	Description
INO.	name	specific	Description
1	alias	No	Displays, creates, and deletes aliases.
2	attrib	No	Displays and changes file and directory attributes.
3	bcfg	No	Displays and modifies drivers and the boot configuration.
4	break	No	Executes debugger break points.
5	cd	No	Displays and changes the current directory.
6	cls	No	Clears the standard output by using the background color.
7	comp	No	Compares the contents of two files.
8	connect	No	Binds an EFI driver to a device to start it.
9	ср	No	Copies one or more files or directories to another location.
10	date	No	Displays and sets the current system date.
11	dblk	No	Displays the block contents of a block device.
12	devices	No	Displays a list of the devices managed by an EFI driver.
13	devtree	No	Displays a device tree based on the EFI driver model.
14	dh	No	Displays the handles in an EFI environment.
15	disconnect	No	Disconnects one or more drivers from a device.
16	dmem	No	Displays memory contents.
17	dmpstore	No	Displays all NVRAM variables.
18	drivers	No	Displays a list of drivers based on the EFI driver model.
19	drvcfg	No	Executes the driver configuration protocol.
20	drvdiag	No	Executes the driver diagnostic protocol.
21	echo	No	Displays messages and enables or disables command
			echo.
22	edit	No	Starts full-screen editing of an ASCII file or Unicode file.
23	err	No	Displays and changes error levels.
24	exit	No	Exits the EFI shell.
25	for/endfor	Yes	Executes a for loop.
26	getmtc	No	Displays the current monotonic counter value.
27	goto	Yes	Moves batch file execution to another location.
28	guid	No	Displays all GUIDs in an EFI environment.
29	help	No	Displays a command list or command help information.
30	hexedit	No	Starts full-screen editing in hexadecimal mode.
31	if/endif	Yes	Executes a command under special conditions.
32	load	No	Loads an EFI driver.
33	LoadBmp	No	Displays a bitmap file.

C122-E003-02EN 12-5

No.	Command	Batch	Description
INO.	name	specific	Description
34	LoadPciRom	No	Loads a PCI extended ROM image from a file.
35	ls	No	Displays the files and subdirectories in a directory.
36	map	No	Displays mapping for a definition.
37	memmap	No	Displays a memory map.
38	mkdir	No	Creates one or more directories.
39	mm	No	Displays and changes MEM, IO, PCI.
40	mode	No	Displays and changes the mode of a console output
			device.
41	mount	No	Mounts the file system on a block device.
42	mv	No	Moves one or more files or directories.
43	openinfo	No	Displays the handle protocol and agent.
44	pause	No	Stops for key input after displaying a message.
45	pci	No	Displays PCI devices or the PCI configuration space.
46	reconnect	No	Reconnects one or more drivers.
47	reset	No	Resets the system.
48	rm	No	Deletes one or more files or directories.
49	set	No	Displays, creates, changes, and deletes EFI environment
			variables.
50	setsize	No	Sets a file size.
51	stall	No	Suspends execution for several milliseconds.
52	time	No	Displays the current time and sets the system time.
53	touch	No	Sets the file date and time to the current date and time.
54	type	No	Displays file contents.
55	unload	No	Unloads protocol images.
56	ver	No	Displays version information.
57	vol	No	Displays the volume information of the file system.

12-6 C122-E003-02EN

Appendix A Alternative Key Combinations for Some Special Keys on Serial Terminals

On a serial terminal, you can use alternative key combinations for some special keys, as indicated in Table A.1.

Table A.1 Special keys and their alternatives

Special key	Alternative key combination
HOME	ESC + h (press the [ESC] key and the [h] key in sequence)
END	ESC + k
INSERT	ESC++
DELETE	ESC + -
PAGEUP	ESC +?
PAGEDOWN	ESC +/
F1	ESC + 1
F2	ESC + 2
F3	ESC + 3
F4	ESC + 4
F5	ESC + 5
F6	ESC + 6
F7	ESC + 7
F8	ESC + 8
F9	ESC + 9
F10	ESC + 0

C122-E003-02EN A-1

Index

Numerics	Boot From a File window	10-5
22 way Ungrada Liganga window 2 152	boot functio	
32-way Upgrade License window 3-152	boot function	
Α	boot manager	
	starting boot manager	
abbreviation function 8-10	boot manager menu	10-2
access control	Boot Option Maintenance menu	
Access Control window 3-144	bridge-related command	
access procedure2-9	button area	2-8
access restriction function 8-18, 8-106		
Active Image Change window 7-25	С	
Active MMB	Cancel button	2-11
Adapter Properties window 10-21	CE	
Add a Boot Option window 10-6	certificate	
Add Filter window	certificate signing	3 133, 3 130
Add SB/IO_Unit to Partition window 3-94	request	3-134, 3-135
Add/Edit Schedule window 3-85	change	
Add/Edit User window 3-112	Change Boot Order window	
address definition 8-15, 8-43	Change Password window	
Administrator	channel group	
Agent Log Filtering Condition	Channel Group menu	
window5-44	Channel Group window	
Agent Log window 5-41	channel-group	
Aging Time window	character string input field	
Alarm Email Filtering Condition	Class of Service	
window	clear access_control	4-2, 4-6
Alarm E-Mail window 3-148	clear arp	8-201
alert label ix	clear bridge	8-229
Apply button	clear config	8-163
ASR Control window	clear ether statistics	8-292
Auto-Refresh	clear ip igmp snooping statistics	8-302
auto-startup ilie	clear logging error	8-245
В	clear logging line	
· -	clear logging message	8-248
Backup EFI Configuration window 3-169	clear logging trap	
Backup/Restore Configuration	clear ramdisk	
menu	clear spanning-tree	
Backup/Restore MMB Configuration	clear ssh_key	
window	CLI	
basic operation in Web-UI window 2-9	CLI access	8-1
batch script	CLI command list	
BMC Firmware Update window 3-165	MMB	
Boot (Offline) Firmware	PSA	
boot control	CLI command mode	
Boot Control window	CLI command, list of	
boot firmware 9-1	CLI operation	.4-1, 6-1, 8-1

C122-E003-02EN IN-1

access through serial interface 4-1	D	
access via management LAN	Date/Time window	3-116
interface	Default Priority window	
CLI operation, switching with 2-14	Delete Boot Option(s) window	
clock set 8-144	Delete VLAN window	
close	Destination Port window	
command description format 1-3	device-related command	
command editing function 8-6	DIMMs window	
command input method 8-5	Disk Partitions window	
command line interface 2-1	diskctrl	
command mode		
command selection display function 8-6	displaying and using window	
common display of interface setting 7-3	displaying and using window	
communication speed	DN	
competition between commands 8-10	download	/-36
Configuration Copy menu 7-12	Download Configuration File	7.20
Configuration Copy window 7-12	window	
configuration definition	Download Configuration window .	
command 8-1, 8-14, 8-25	download ssh_key	
configuration definition command	DSA key 8-309, 8	
operation8-4	duplex	
configuration definition command,	duplex mode	
list of 8-14	DVD retry boot	
configuration definition file 7-25, 8-25	dynamic address	
configuration definition management 8-14	dynamic entry	7-72
configuration definition	E	
management command 8-25	E	
configuration definition mode 8-4	Edit Filter window	3-146
configure8-34	Edit User window	
connect GSWB4-4, 4-32	editing command	
console	eeprominit	
Console Redirection Switch	EFI	
window	CLI display format	
Console Redirection window 3-105	EFI command	
console-related command 8-20, 8-144	EFI Configuration Utility window .	
contact address 8-116	EFI Firmware Update window	
content display frame 2-3, 2-7	EFI function	
contents of this manuali	EFI Setup menu	
CoS Queue	EFI shell	12 1
CoS Queue Map window		
CPCB window	EFI shell command syntax	
CPUs window	EFI shell command, list of	
Create CSR window	electronic certificate	
Create Selfsigned Certificate	E-mail	
window	enabled exec	
Create SSH Server Key window 3-139	Error	
CSR	error log	
CSR exporting	error log file	
20. Co. porting	Error Log window	
	error message	8-6, 8-13

IN-2 C122-E003-02EN

error status	GSWB Firmware Update window 3	3-157
Ethernet Controller window 5-12	GSWB menu	
event	GSWB Status menu	. 7-10
exec-timeout 8-111	GSWB Status window	. 7-10
execution trigger 8-5	GSWB#x window	3-67
Exit		
exit 4-4, 4-33, 8-35	Н	
Exit window	Hardwara Inventory window	5 25
Export Key/CSR window 3-135	Hardware Inventory window	
Export List window 5-49	help	
Export window 5-52	help function 8-5,	
·	history function	
F	host function 8-15,	
factory default 4.2.4.5	Host window	
factory_default	hostname	
FANB window	HyperTerminal	10-15
Fans Status Clear window 3-30	1	
Fans window	•	
command 6-2, 6-11	IGMP snooping	
filtering	IGMP snooping function 8-17,	
filtering condition	IGMP Snooping menu	
	IGMP snooping-related command 8	8-294
Alerm Empil 2, 150	IGMP-related command	
Alarm Email	IGMPSnooping 8-300, 8	
System Event Log	Import Certificate window	
filtering-related command 8-23	information frame 2-3	
firmware	Information window 3-100,	7-14
Firmware Information window 3-20	input string requirement	
Firmware Update menu	install	
flow control definition 8-37	interface 8-17, 8	8-100
flow control function 8-15	interface designation	8-3
flow control status	interface display	
Flow Control window	interface name	8-3
flowcontrol 8-37	interface port-channel	8-82
frame configuration 2-3	interface setting	7-3
content display frame 2-3	Interface Setting window	. 7-79
information frame 2-3	Inventory menu	. 5-35
submenu frame 2-3	IO_Unit board	
function key 8-7, 8-11	IO_Unit menu	. 3-44
G	IO_Unit#x window	3-50
G	IP address input field	. 2-11
get local partition number	ip default-gateway	
command 6-2, 6-16	ip dhcp restart	
get serial number command 6-2, 6-18	ip host	
giga-bit switch board 7-1	ip igmp snooping	
global edit 8-4	ip igmp snooping vlan	
Global Setting window 7-77, 7-108	ip igmp snooping vlan mrouter	. 8-91
GSWB	ip igmp snooping vlan static	
Web-UI display format 2-14	IPMI	7-1

C122-E003-02EN IN-3

IP-related command 8-21, 8-200	MAC bridge function 8-	
J	MAC Bridge menu	
	maintenance status	
jumbo frame	Maintenance Wizard window	
jumbo frame function 8-15, 8-40		3-1/3
Jumbo Frame menu 7-70	management LAN interface	4.2
Jumbo Frame window 7-70	CLI operation access	
	Management LAN Port Configuration	
K	window	
	Management menu	
key combination	mapping	8-264
key deletion	memory resource	8-171
key generate	menu hierarchy	2-6
Keyboard window 10-17	menu list	
KVM window	MMB	3-1
	PSA	
L	message log 7-31, 7-34	
LDAD 0.10 0.127	8-142, 8-256, 8-259	, 0 155,
LDAP8-18, 8-127	message log file	7-36
ldap8-303		
Idap dn	Message Log window	
Idap server 8-127	MIB	
Idap ssl 8-130	MIB information	
LDAP-related command 8-24, 8-303	Mirror License window	
LEDs window	mirror port	
License menu	mlog	8-139
line 8-110	MMB	
line log	CLI display format	
line log file	Web-UI display format	
Line Log window	MMB Firmware Update window	3-154
line message	MMB menu	3-65
link	MMB#x window	3-65
log	mode change	8-15
Log Download window	mode change command	
	Mode window	
log file	monitor session destination	
Log Setting window	monitor session source	
logging host 8-142	monitor occolori occioc	0
logging level 8-140	N	
logging on 8-139		
Logout	native VLAN ID	
log-related command 8-23, 8-245	Native VLAN window	
14	navigation bar	2-5
M	Network Configuration menu	3-116
MAC address input field 2-11	Network Interface window	
MAC address table	Network Interfaces window	
MAC Address Table window7-75	Network menu	
MAC Address window	Network Protocols window	
	Network Routing window	
mac address-table aging-time 8-48 mac address-table static 8-49	normal status	
mac address-lable static 8-49		1

IN-4 C122-E003-02EN

notation iii	Port Statistics window	7-60
ntp 8-19, 8-135	Port Status window	7-55
NTP server8-135, 8-137	port trunking function	8-17, 8-82
ntp server 8-135	port-channel load-balance	8-86
ntp status 8-137	port-related command	8-21, 8-182
NTP-related command8-24, 8-314	power	7-116
NVRAM 9-2	Power Control menu	7-116
NVRAM variables for boot control 9-2	Power Control window	7-116
•	partition	
0	power off	4-2, 4-7
open 8-25	power on	
operating environment 8-1	Power Supply window	
operation command 8-1, 8-9, 8-144	priority control	
operation command, list of 8-20	priority control function	
Operator	Priority Queueing menu	
OP-Panel window 3-61	private key 3-132	, 3-133, 3-134,
organization of this manual i	3-135, 3-138, 3-139	
Other Boards menu 3-57	private key exporting	
other command 4-32	privilege level	
output redirection	Process List window	5-27
	PSA	
P	Web-UI display format	
pager function 8-12, 8-148	PSA start/stop command	
PAL/SAL Firmware Update window 3-159	PSA troubleshooting data colle	
partition	command	
Partition Configuration window 3-91	pulldown list	2-10
Partition Dependence window 7-114	Q	
Partition Home window	Q	
Partition Information window 5-5	QoS-related command	8-23, 8-261
Partition menu	quit	8-152
Partition#x menu 3-100	-	
passwd	R	
password	rate control	7-67
PCI Devices window 5-10	rate control function	
PCI Box menu	Rate Control window	
PCI_Box#x window	read privilege user	
PDB window	Refresh	
physical link	Refresh Rate window	
ping 4-4, 4-34, 8-202	reload	8-169
port	Remote Access window	7-49
port channel setting information 8-197	remote PC connection	2-1
Port Configuration window 7-52	Remote Server Management	
Port menu	window	
port mirroring	remote-access	
port mirroring function 8-17, 8-96	Remove SB/IOU from Partition	
Port Mirroring menu	window	3-95
port mirroring setting information 8-193	remove SB/IOU from partition	2 0 -
port number 8-3	window	3-95

C122-E003-02EN IN-5

Remove SB/IOU to Partition window 3-95	set timezone	. 4-2, 4-10
Reserved SB Configuration window 3-98	setting area	
Reset menu	setting button	
Reset System	setting command	
Reset window 7-118	setting privilege user 5-3,	5-12, 5-16,
restart	5-17, 5-20, 5-54, 5-58	
restore	Setup menu	5-54
restore config 8-31	show	8-36
Restore Configuration window 7-23	show access_control	
Restore EFI Configuration window 3-170	show arp	
RSA key 8-309, 8-311, 8-312	show bridge	
_	show bridge aging-time	
S	show bridge summary	
S.M.A.R.T. window 5-57	show clock	
SAF-TE operation command 6-2, 6-3	show date	
save	show ether statistics	
save config	show filelist	8-146
Save Configuration window 7-22	show gateway	
SB menu	show globalmac	
SB#x Status Clear window	show history	
SB#x window	show hostname	
schedule	show http	
adding	show http_port	
	show https	
changing	show https_port	
deleting	show interface counter	
Schedule Control window	show interface status	
Schedule List window	show interface switchport	
Schedule menu	show ip 4-3, 4-20, 4	l-23, 8-208
SCSI Configuration Utility 10-19	show ip default-gateway	8-210
SEL window	show ip host	
selection field	show ip igmp snooping	8-294
a a wild links of a a a	show ip igmp snooping mrouter	
Serial interrace CLI operation access 4-1	show ip igmp snooping statistics	8-300
serial terminals	show ip socket	8-213
Set Auto Boot Timeout window 10-13	show Idap	8-303
set date4-2, 4-9	show logging	8-259
set gateway	show logging error	8-250
set hostname	show logging line	8-254
set http	show logging message	
set http_port	show logging trap	
set https	show mac address-table multicast.	8-298
set https_port	show memory	
set ip	show monitor session	8-193
set ssh	show network	
set ssh_port	show ntp	
set telnet	show port-channel	
set telnet_port	show portstat	
σοι ισποι_ροπ	show process	8-173

IN-6 C122-E003-02EN

show remote-access 8-261	special character 8-7
show snmp-server 8-305	special display format8-7
show spanning-tree statistics 8-240	special input format 8-7
show spanning-tree status 8-231	special key
show ssh 4-3, 4-21, 8-312	speed 3-121, 8-103
show ssh_port	ssh8-19, 8-133, 8-156
show storm-control 8-262	ssh enable
show system information 8-175	SSH Key Generate window7-48
show system status 8-178	ssh keydel
show telnet	ssh keygen
show telnet_port	SSH menu3-139
show terminal 8-149	SSH protocol
show timezone	ssh protocol8-156
show vlan	ssh server
show wrr-queue cos-map 8-264	SSH Status window
shutdown 8-102	SSH-related command 8-24, 8-309
SNMP8-18, 8-113	SSL certificate
snmp	SSL menu
SNMP agent	static address
SNMP Community window 3-126, 7-38	Static MAC Address window
SNMP Configuration menu 3-126	statistical information
SNMP engine ID 8-113	8-240, 8-244, 8-266, 8-292, 8-300, 8-302
SNMP menu	statistics management 8-23
SNMP Trap window 3-128, 7-43	statistics management command 8-266
SNMP v3 Configuration window 3-130	Status
SNMP version 3 Configuration	status display
window	Storage Controller window 5-17
SNMP-related command 8-24, 8-305	storm-control 8-41
snmp-server contact 8-116	STP8-16, 8-52
snmp-server enable traps 8-123	STP Statistics window
snmp-server engineID local 8-113	STP Status window
snmp-server host 8-120	STP-related command 8-22, 8-231
snmp-server location 8-114	string editing function 8-11
snmp-server user 8-117	submenu frame 2-3, 2-6
software clock 8-144	submenu hierarchy display bar 2-5
Software Inventory -Detail- window 5-39	switching
Software Inventory window 5-37	with CLI operation 2-14
Source Port window 7-59	with Web-UI operation 2-13
Spanning Tree menu	switchport access vlan8-69
spanning tree protocol 7-77, 8-16	switchport allowed vlan 8-73
spanning tree protocol function 8-52	switchport mode 8-71
spanning-tree 8-52, 8-65	switchport native vlan 8-76
spanning-tree bpdufilter 8-63	switchport priority default8-78
spanning-tree cost 8-61	System (Online) Firmware7-25
spanning-tree forward-time 8-58	system clock 8-135
spanning-tree hello-time 8-57	System Event Log
spanning-tree max-age 8-55	System Event Log (Detail) window 3-16
spanning-tree port-priority 8-60	System Event Log Filtering Condition
spanning-tree priority 8-54	window

C122-E003-02EN IN-7

System Event Log window 3-10	user administration
System File (display) window 5-33	User Administration menu
System File (Selection) window 5-31	user exec
System Information window 3-18	User List window
System Interconnect menu 3-51	user management
System menu	user priority
System Power Control window 3-24	user privilege
System Setup window 3-21	user privilege level
system status	user setting
System Status window	-
T	V
ı	virtual LAN function 8-16, 8-67
tab-based complement function 8-5, 8-13	VLAN 8-16, 8-67
telnet 8-19, 8-132, 8-153	VLAN Configuration window
telnet enable 8-132	VLAN ID Select window7-90
Telnet window	VLAN Information window
Temperature window 3-32	VLAN menu
termcap support 8-11	VLAN Setting window
terminal pager 8-148	VLAN-related command 8-22, 8-219
termination function 8-11	
text field	W
tftp8-158	Warning
tftp server	warning status
timeout 8-111	Watchdog window
timeout time	Web-UI2-1
title area	Web-UI menu
traceroute 8-215	Web-UI operation
transmission notification type 8-123	switching with
trap	
trap log	Web-UI window
trap log file	basic operation in Web-UI window 2-9
Trap Log window 7-33	list of menu
trap transmission 8-123	who
·	Who window
U	window and part of manual,
unit-related command8-161	correspondence between1-5
update BMC	window description format
update command 4-27	wrr-queue cos-map
update EFI	42222 222
update MMB	X
update SAL	VAIH varied out
Upload Configuration File window 7-18	XAI#x window
USB/Video/DVD Switch window 3-87	XDI#x window
User	

IN-8 C122-E003-02EN

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